May 1934

TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office

technology
review
Published by MIT

THE TECHNOLOGY REVIEW, May, 1934. Vol. XXXVI, No. 8. Published monthly from October to May inclusive and in July at 10 Ferry Street, Concord, N. H. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription $3.50; Canadian and Foreign subscription $4.00. Entered as second-class matter at the Post Office at Concord, N. H., under the Act of March 3, 1879.

THE TABULAR VIEW

PRESIDENT COMPTON was recently appointed by Secretary of War Dern to a committee of 11 civilian and military experts to make a constructive study of the Army Air Corps. He has just been reëlected Chairman of the American Institute of Physics and he is, of course, Chairman of President Roosevelt's Science Advisory Board. His article, "The Causes of War," is based on an address delivered before a group at M.I.T. interested in promoting peace and goodwill among nations. ¶ ALBERT FARWELL BEMIS, '93, has led an active career as an administrator of business and engineering enterprises, both in the United States and abroad. He is Chairman of the Bemis Bro. Bag Company and of Building Products, Inc., and President of the Housing Company. The second volume of his book, "The Evolving House," under the title of "The Economics of Shelter," is shortly to be issued by the Technology Press. ¶ G. THAYER RICHARDS, an architect by training and naval architect by hobby, has been engaged in editorial work at Technology for the past few months. In presenting his article on the America's cup defenders, he acknowledges the assistance of Professor GEORGE OWEN, '94, of the Institute's Department of Naval Architecture and Marine Engineering. ¶ RALPH E. FLANDERS is President of the Jones and Lamson Machine Company, Springfield, Vermont. His social and economic platform for business was first presented by him in an Aldred Lecture at M.I.T. entitled the "Future of Business Enterprise." ¶ MYRON W. DOLE, '04, is Assistant Professor in the Institute's Department of Mechanical Engineering.

WITH compelling though we hope pardonable enthusiasm, we point (even though it is quite incorrect to point) to the greatly increased volume of advertising carried in this issue. Not since May, 1932, has The Review presented so large a complement of advertising, and the eight issues of this volume to date represent an increase of 10% over the equivalent eight issues of last year. ¶ These advertisers are in the main Review subscribers or have Review readers on their staffs. Reader and advertiser, therefore, share a common hallmark of quality. They appear in our pages in response to a candid campaign on the part of The Review to promote an intramural exchange of business among Review readers. Within the boundaries of The Review's circulation lies a fertile and discriminating market as well as a group of firms with products and services of a quality sought by that market; and the advertising pages of The Review represent a mart convenient to both. May this then be both slogan and reality: "Buy Review." It will aid The Review (we are not obscuring that aspect, you may be sure) and at the same time it will increase the prosperity of The Review family. ¶ On the next page is an index of Review advertisers, 67 of them. In a sense, they are neighborhood firms and we bespeak your sympathetic attention to the various messages they present in these pages. Buy Review.

INDEX TO ADVERTISERS

"Buy Review"

●

Sixty-seven advertisers are represented in this May issue of The Review. Readers are requested to consult this list when making purchases of merchandise, equipment, or professional services. In writing to advertisers, please mention The Review.

G-E *Campus News*

STREAMLINED MOTOR

The new automobiles and airplanes have nothing, as far as streamlining goes, on an electric motor recently manufactured by General Electric. And undoubtedly many visitors to Langley Field, in Virginia, where the motor is now located, will think it some kind of miniature "Zeppelin." The motor is being used in investigations of the noises made by various types of propellers, the objective, of course, being to design a propeller in which noise is reduced to the practical minimum.

The motor, of the wound-rotor induction type, rated at 200 horsepower, is probably the first of its kind ever built. The propellers are mounted directly on the motor shaft, and can be run at speeds of between 1000 and 3600 rpm. The noises are picked up by a microphone and analyzed by means of special measuring devices.

The motor was designed by C. J. Koch, M.I.T., '24, and M. H. Wells, Syracuse, '02; and the control by A. Suksdorf, Washington State, '16.

LESS NOISE

Until recently, noise has been regarded as a necessary evil, something that has come quite naturally with higher speeds and more complex civilization. But someone noticed that noise gives us the "jitters"; rubber tires began to appear on milk wagons, and rubber cushions on ash cans. So, when General Electric was developing its air-conditioning units, noise became an important factor. Propeller-type fans, which had to run 24 hours a day to circulate air, were used, and they made too much noise for comfort. The Research Laboratory was given the job of doing something about it.

Research scientists examined the blades and found that on conventional fans all parts of the blade did not push air at the same rate of speed; in some cases, in fact, some parts pulled air back instead of pushing it forward. Blades on which every bit of surface pushed air at approximately the same speed were designed. And lo! not only was the efficiency of the fan tremendously increased, but the fan was quiet. Furthermore, a system was evolved whereby accurate fan-noise rating is possible. As a result, air-conditioning units which make no more noise than is present in a closed room on a quiet day were developed.

This quiet-fan development was done under the direction of K. D. McMahan, Oklahoma A. & M., '29, of the G-E Research Laboratory.

CHARLES PROTEUS STEINMETZ

"Guide, philosopher, and friend" to his generation of electrical engineers, he would have been 69 years old had he lived until April 9. From his 30 years of work with General Electric came the mathematical formulas involving alternating current, the discovery of the laws of hysteresis, and methods of protecting transmission lines from lightning damage.

These, to name a few, were basic aids in establishing present-day standards of electric service.

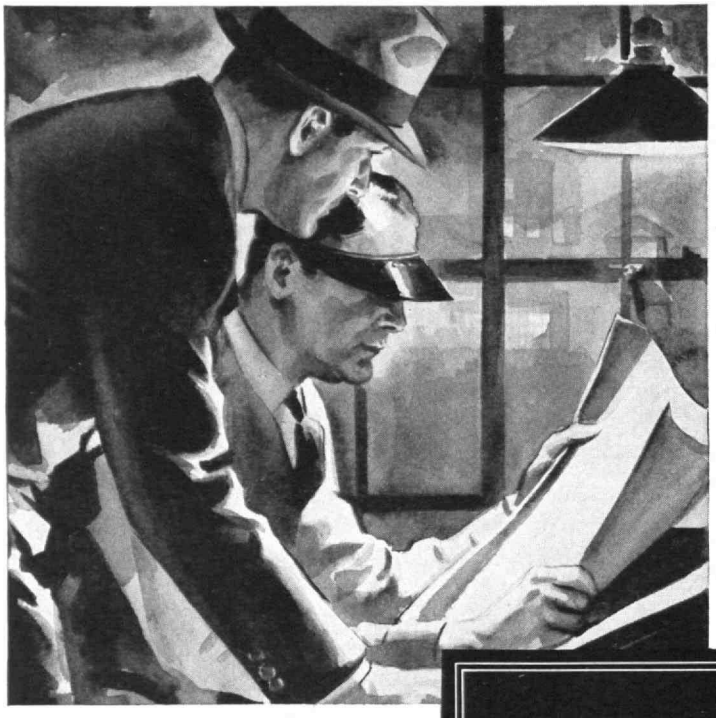
Yet, the heritage left by Steinmetz is the memory of not only a great scientist but of an essentially charming, kindly, helpful man of wide interests.

Out of the past, on the night of April 7, his voice spoke to radio's thousands—a voice that lives on a strip of film, evidence of our victory over time. Thus was inaugurated a three-day tribute to one who was loved for his human qualities as well as revered for his engineering achievements.

96-53DH

GENERAL ELECTRIC

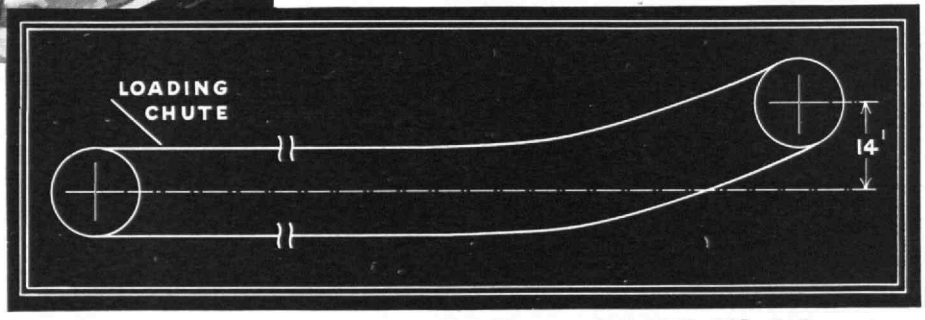
IN A HOT SPOT FOR 4 YEARS



GOODYEAR HY-TEMP CONVEYOR BELT STILL ON THE JOB HANDLING SLAG

A G.T.M. SPECIFICATION

Record of 406,155 tons to date and Belt is still in working condition



G. T. M. specified Goodyear H-T Conveyor Belt 828', 30"x 5-ply, for Duquesne Slag Products Company, Pittsburgh, Pa.

DUQUESNE Slag Products Company, of Pittsburgh, Pa., points to a veteran conveyor belt in its plant as the best of reasons for standardizing on Goodyear Hy-Temp Belts.

This particular conveyor belt has given Duquesne what the user considers exceptionally good service with a minimum of trouble and at very low cost.

Its job all along has been a real test of belt stamina, too.

G. T. M. RECOMMENDED HY-TEMP

Four years ago last February, Duquesne asked the G. T. M. – Goodyear Technical Man – to analyze their slag conveying installation and submit his recommendations.

As he always does, the G. T. M. made a careful study of the operating conditions. He noted that the belt would be called on to carry slag, frequently at comparatively high temperatures.

The Goodyear Style H-T Conveyor Belt (828 feet long, 30" by 5-ply) which he specified has now handled 406,155 tons in its four years of duty *and is still in fair condition.*

You can have the same efficient, trouble-free, cost-reducing service from your conveyor or power-transmission belts by getting the *right* equipment, accurately specified and scientifically built for your operations.

Why not discuss your requirements for belts and hose with this practical expert who knows rubber and its many uses in industry? He is readily available through Goodyear, Akron, Ohio, or Los Angeles, California, or your nearest Goodyear Mechanical Rubber Goods Distributor.

BELTS • MOLDED GOODS
HOSE • PACKING
MADE BY THE MAKERS OF GOODYEAR TIRES

THE GREATEST NAME IN RUBBER

GOODYEAR

Harold Orne

At the weather observatory on Mount Washington (N.H.) where a gale velocity of 231 m.p.h. — the highest ever measured — was recently recorded. The object on the right is the observatory bell beautifully encrusted with ice

The Technology Review

Title Reg. U. S. Pat. Office

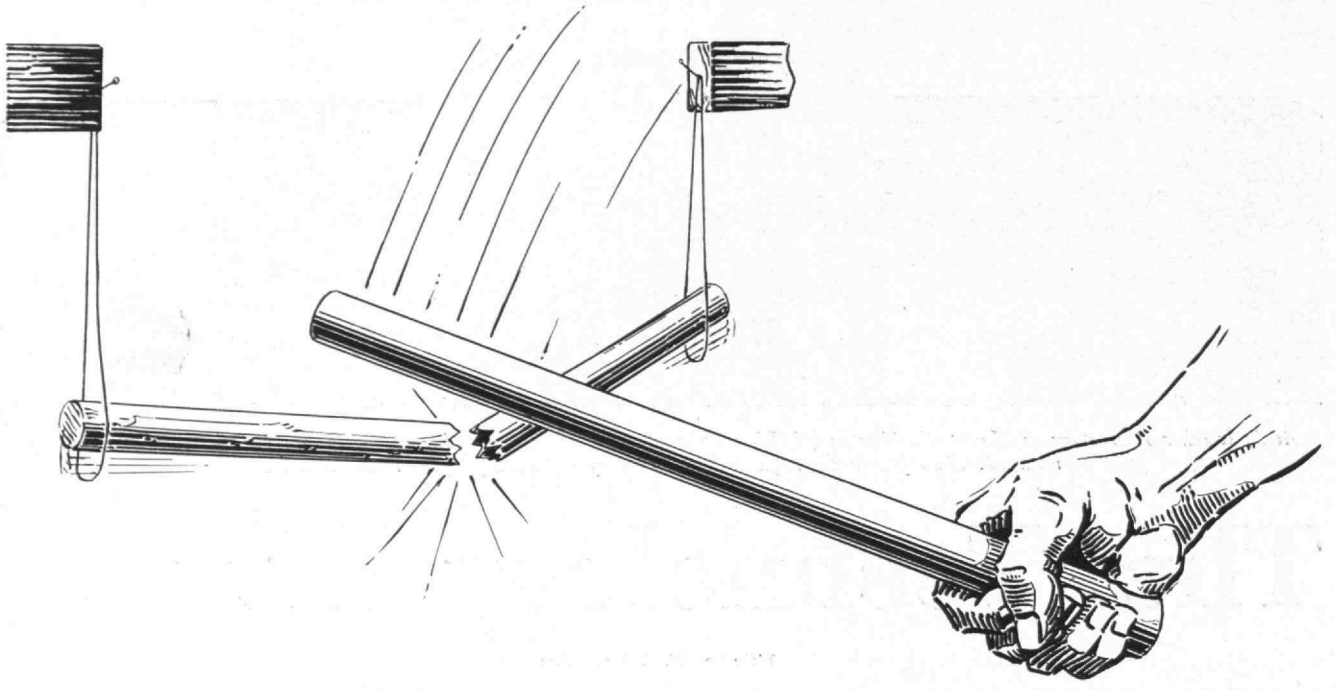
EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CONTENTS

Vol. 36 MAY, 1934 *No. 8*

PUBLISHED MONTHLY FROM OCTOBER TO MAY INCLUSIVE AND IN JULY ON THE TWENTY-SEVENTH OF THE MONTH PRECEDING THE DATE OF ISSUE AT 50 CENTS A COPY. ANNUAL SUBSCRIPTION $3.50; CANADIAN AND FOREIGN SUBSCRIPTION $4.00. PUBLISHED FOR THE ALUMNI ASSOCIATION OF THE M. I. T. REDFIELD PROCTOR, PRESIDENT; HARRISON P. EDDY, JR., EDWARD L. MORELAND, VICE-PRESIDENTS; CHARLES E. LOCKE, SECRETARY: J. RHYNE KILLIAN, JR., TREASURER.

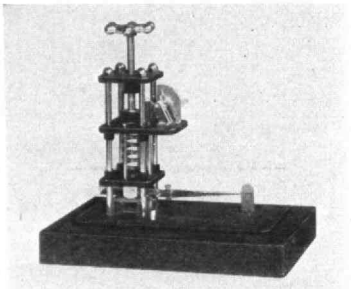
PUBLISHED AT THE RUMFORD PRESS, 10 FERRY STREET, CONCORD, N. H. EDITORIAL OFFICE, ROOM 11-203, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE A, MASS. ENTERED AS SECOND-CLASS MAIL MATTER AT THE POST OFFICE AT CONCORD, N. H. THREE WEEKS MUST BE ALLOWED TO EFFECT CHANGES OF ADDRESS. BOTH OLD AND NEW ADDRESSES SHOULD BE GIVEN.



TRY THIS

AMAZING EXPERIMENT

A BROOM handle, suspended as indicated, may be broken by a sharp blow near its center, *without injuring the supporting threads!* Because of a peculiar inertia effect, its ends actually rise and move toward the center before falling — even though the applied force acts directly downward.



Demonstration test apparatus, developed for the E-K Medical Gas Laboratories, Inc.

THIS phenomenon was utilized in the mechanism here shown, which automatically indicates the ultimate strength and deflection of test samples. Our problem was to register slow bending — but *not* the sudden motions occurring at break.

SUCH developments are typical of our service. We specialize in unusual problems and are well equipped to handle every phase of a wide range of undertakings, including research and testing in almost any branch of Applied Physics, production in wood, metal and industrial jewels — and necessary incidentals.

CALIBRON PRODUCTS, INC.

WEST ORANGE NEW JERSEY

THE
TECHNOLOGY
REVIEW

Vol. 36, No. 8 May, 1934

The Causes of War

An Examination of the Factors Which Lead to Conflict

By Karl T. Compton

THE problems of war may be approached from various aspects, philosophical, sociological, ethical, religious, economical, emotional, or factual. I shall approach one aspect of the matter by a method well known in science; namely, by separation of the variables. In other words, we will first make a rough prediction as to the future on the basis of past experience, and then examine the contributory causes of war to see in what way these causes may have recently changed so as to modify the original prediction. In this way we may hope to isolate, for particular consideration, some of those causes of war to which our attention may most profitably be given.

Roughly speaking, wars have continued with undiminished frequency from the earliest times up to the present. This statement is probably true as to what might be called large-scale wars, although it is not true in petty warfare, guerrilla warfare, or local strife, for these have certainly decreased in frequency. We in America like to think of ourselves as a peace-loving people as compared with other peoples, yet we have kept up an average of one major war for each generation.

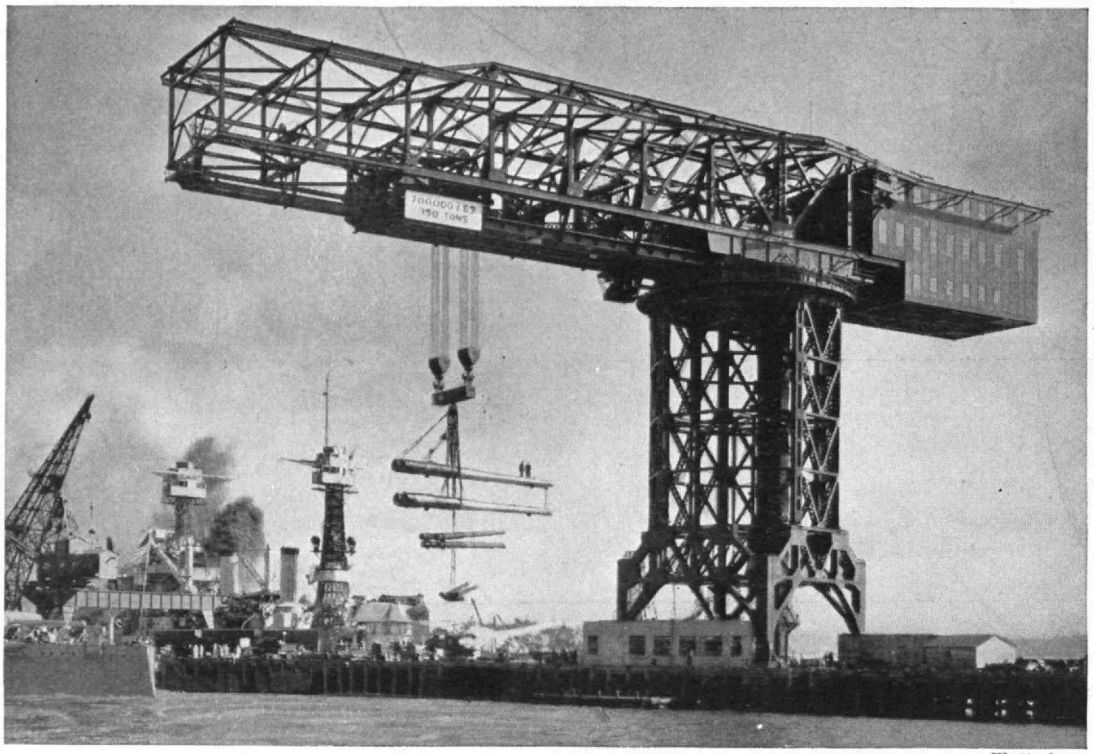
As regards the magnitude of wars, the situation is even less encouraging. The statistics exhibited at the recent meeting of the American Association for the Advancement of Science by Professor Sorokin of Harvard show that century by century the casualties in war have increased steadily and at a terrifically accelerated rate in the past two centuries, in the last war reaching eight times the total of all the previous centuries of the Christian era.

A scientist would conclude, by an extrapolation of this history of frequency and magnitude of wars, that war will continue and become rapidly more terrible, but he would qualify this conclusion with the important phrase, *unless there is a significant change in the conditions which lead to war*. Our problem then reduces itself to an examination of the factors which lead to war, with particular reference to the question, "Have these factors changed?"

As the basic causes of war I would suggest first, a national policy of expansion through conquest, second, outbreak of war as the climax of an increasing complication and instability due to political maneuvering for extension of national influence and commercial advantage, and finally such additional alleged causes as propaganda subsidized by munitions manufacturers, etc.

The principal motives in national policies of expansion through conquest have been plunder, colonization, strategy of national defense, and religion. In the early days plunder was the principal motive. This later developed into colonization to relieve pressures of population, or for purposes of trade expansion. Along with colonization and the development of foreign trade came the necessity of maintaining trade routes and the defense of strategic routes, such as Gibraltar, Suez, and Panama. Furthermore, as colonization and trade increased there came into consideration the protection of large capital investments in foreign territories.

Until the last century religion entered as an almost invariable accompaniment of war. For the most part this was probably a rationalization whereby conversion



Westinghouse

This colossus of cranes lifts 50-ton guns in half-dozen lots at the Puget Sound Navy Yard

of other peoples, under authority of the Scriptures, served as a pretext or as a means of massing public opinion in cases where the real pressure for the war lay in other causes. In other cases, however, there is no doubt but that genuine religious zeal was the impelling motive. In any case, the paradox has been stated that in the first seventeen centuries of the Christian era more people were killed in the name of Christ than in all other ways combined.

Among the great movements in national expansion through conquest may be listed Alexander's conquest of the then known world, Caesar's conquest of Gaul, the conquest of all Asia and most of Europe by Genghis Khan, and the European and African wars of Napoleon. Looking at the modern world we find that the political and, to a large extent, the national organizations of North and South America, Africa, India, the East and West Indies, and Korea are the result of national conquest by war in relatively recent times, and in very recent times we have seen examples of this in Siberia and Manchukuo.

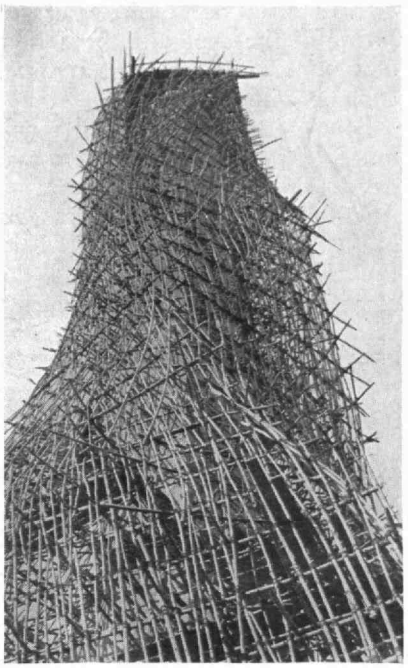
Let us now come back to the question, "Have basic conditions in the world changed so that these causes of war have been substantially modified in importance?" We may say that war for plunder, at least in its cruder forms, has practically vanished. War for colonization by force has also practically vanished except for the mixed situation in the Orient. Religion is no longer a cause of war. Strategy of national defense is still a strong item in the background, but will probably never be an admitted cause of warfare.

Consequently we see that a profound change has occurred in this first category of causes of war, in that they have largely been eliminated. This is in part due to the fact that colonization has already occurred in the most accessible regions, but is principally due to a change of world opinion in the direction of a higher code of national ethics. This change of opinion in turn is due, I believe, to increased international understanding which has come about through modern means of communication, transportation, and commercial interdependence. This closer knitting of the world together has given new opportunities and causes for friction, but it has certainly brought about a practical elimination of the earlier and cruder causes of warfare.

Because of this change in world opinion, practically any war in the future must occur at least under the guise of defense against aggression by both parties to the struggle. If world opinion and ethics could advance a stage farther to the point at which political intrigue and nationalistic camouflage could be prevented from disguising an aggressive war as one of defense, then very probably wars would cease.

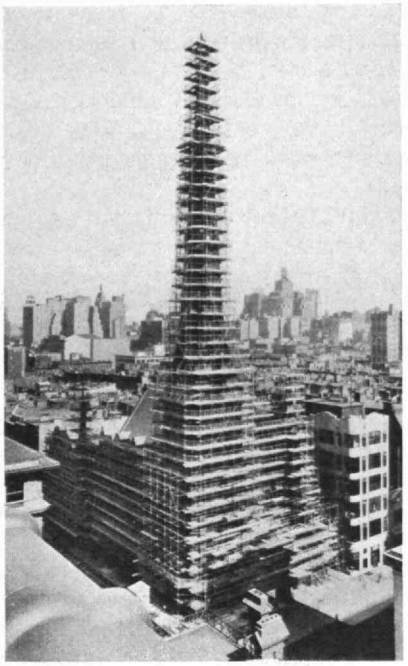
In personal relationships man has always been given the right of self-defense or defense of his property against illegal attack. In community life the community combines to insure its component elements against illegal attack through its system of municipal and state police, national guard, and even federal troops. It is only because of more or less adequate protection of this type that a peaceful society is able to exist at all without being overturned by an unruly minority.

As we look back in history we can see the development of a civilization in which personal and group freedom has increased in proportion as proper minimum measures for police protection have been adopted by the social group. We can see the development of this idea first in the tribe, then in the city, then in the federation of cities, and finally within the nation. We have yet to see the principle effectively (*Concluded on page 328*)



The discordant homeliness of scaffolding used in constructing a chimney in India 180 feet tall. The tangled mass might well symbolize the present lack of coordination applying to every feature of the building art not only in India but in modern America

Disorder



Patent Scaffolding Co

The symmetrical beauty of modern metal scaffolding as used on a church in New York. Here improvement has been made in an accessory to building while building itself, especially housing, is not yet amenable to such rationalization

Order

Housing and Recovery

Is Government Intervention Helpful or Harmful?

By Albert Farwell Bemis

OF ALL our major industries, building is the most distressed. It is even sicker than agriculture, the only industry that involves a greater number of workers. The most poorly organized of all, the most wasteful of labor and materials, it is clearly a back number. All of us either know this or are painfully finding it out. As the major part of the building industry, housing directly or indirectly forms the livelihood of one-eighth of our population. One-fifth of the family budget is devoted to rent. If home builders are to make profit essential to their economic life, houses must be made and sold with an efficiency equal to that of other industries. Any real recovery must clearly include this substantial part of the nation's population and wealth; and real recovery can come only through the working of economic law, whether helped or hindered by statute.

Although the disabilities of the housing industry may be considered chronic, they have been accumulating for a century or two, and during the past generation and decade have developed with increasing rapidity. Even the public is awakening to the fact. Our houses are costly to construct and obsolete in character. And regardless of cost, the buying of a house is now not a simple, modern transaction, but a spider's web of cross purposes, artfully alluring but forcefully ensnaring.

The obsolete nature of building structure, the diversified materials of which it is composed, and the primitive tools and disorderly ways by which it is made have persisted into these times simply because, of all major products and processes, it is the least amenable to mass production. Pre-manufacture in quantity is not easy where the materials involved are relatively so large and bulky, where the requirements for the finished product are so diverse in form and size, and where delivery of parts and final manufacture must occur at isolated and widely scattered points. Rationalization for such a product clearly demands a more homogeneous building structure and building unit that will avoid waste of materials and make possible nicer structural design in a lower-cost, more efficient, mass-produced house.

Hourly wages in the building industry are higher than those obtaining in any of the other major industries, a logical condition considering its obsolete yet essential character and the itinerant and intermittent nature of employment therein. The cost of housing, therefore, is not only high because of the relative backwardness of productive means, but higher still because of a wage scale quite out of line with the industry's efficiency. Thus, in a time of serious depression in all industries, the persistence of highest wages in the building trades further magnifies the inability of the public to buy housing. These high costs have caused the maximum degree of unemployment and lack of earnings in the building trades, and simultaneously work as a potent evolutionary force to drive the housing industry into mass production. While the great size and importance

of the building industry make general recovery so largely dependent upon it, recovery of the industry itself is dependent on lower costs of production relative to other things; that is, better productive means or lower hourly wages, or both. Greater real wages, and certainly annual earnings, and increased general buying power, especially in housing, would result.

The cost of financing is another disability due, in part at least, to the heterogeneous and unstandardized character of the house, which directly increases the difficulty and cost of appraisal and the difficulty of selling as well.

In what ways may government intervention serve to lessen these many disabilities and start recovery in building and perhaps industry in general? Let us study this question, along with a broad examination of the factors that aid and hinder progress toward both early recovery and substantial improvement in housing provision.*

With the increasing complexities incident to the growth of community life, the need increases for government to intervene for the general public welfare in the untrammeled working of individual initiative. Many centuries ago government imposed limitations on methods of building construction to protect the public against personal injury. Sanitary regulations to safeguard health are more recent. This kind of intervention controls the types of houses which may be built and their occupancy. With the growth of cosmopolitan life, another type of intervention has occurred involving some measure of financial aid incident to the power of eminent domain and the regulation of currency and banking credit. In thickly settled sections housing often gets beyond the scope of individual initiative and ability to provide suitably, and slums or housing shortages develop. Such a situation was the cause of one of the earliest attempts at government housing, in Liverpool around the middle of the last century. But whether intervention is of the former or the latter kind, the manner of its occurrence is of vital importance to the future of the people; intervention may so occur as to develop a sound economic and social structure, or so as to undermine it.

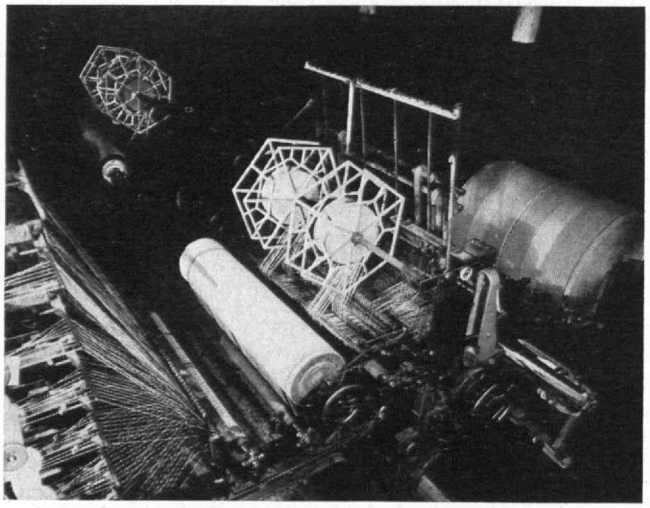
Sound city planning and regulatory measures may mitigate evils such as slums and unsound suburban development, but they cannot wholly prevent them. And when they occur, the size, complexity, and character of the social and economic problems involved in making the necessary readjustments demand governmental attention. Sound community growth, the development of a healthy social structure, and the safeguarding of credit through the general consolidation of individual risks will always call for some measure of government intervention.

Individual effort, however, must initiate and produce. Government can stimulate initiative but cannot directly create it. Whatever measures a government may take, whether to control individual effort or to intervene and coördinate it, the one ultimate purpose should be to stimulate your effort and my effort, and that of John Smith and Mary Jones to promote the public welfare while safeguarding and developing the social and economic structure upon which that depends.

AN INTELLIGENT revision of building regulatory laws on a unified national basis would be a potent step toward reducing the cost of the house in all countries, including our own. All statute law tends toward obsolescence, but the rate of that obsolescence varies widely with the character of the law itself; so also will vary the extent by which it may stimulate or discourage individual initiative. A law framed upon sound principles of building structure might endure for two or three centuries. But in the case of a building ordinance directed to the kind of nail that must be used, or the number of plastering coats, or the thickness of a foundation wall, regardless of its substance, obsolescence will be quick and great; so, too, will be the resulting loss to the community. All competent authorities agree to that. The messy, conflicting, unscientific building ordinances of this country are an unremitting source of

* Readers who wish a fuller development of the point of view outlined in this article may find it in my book, "The Evolving House," Vol. II, published by the Technology Press.

Beaming cotton yarn by hand in Madura, India, a primitive process used there for thousands of years and still in use



Drawing warps direct from creel in weaving "Visinet" open-mesh paper fabric, eliminating the process of beaming

waste. They may well account for one-tenth of the annual cost of shelter — a conservative estimate, certainly, for the United States. Since the World War some steps have been taken, both in foreign countries and in our own, to correct this situation, but it still offers a fertile field for recovery effort. In the United States, in addition to 48 state codes, we have many thousands of municipal codes — often of suspect origin. Their conditions encourage individual initiative in graft and evasion, and they inflict a loss to American housing, conservatively estimated at $250,000,000 a year. A saving of at least a further half-billion dollars annually might be effected by technical improvements in materials and methods of production which a sound and unified recodification of these innumerable regulatory laws would greatly promote.

Regulatory measures may deal also with finance. Besides the customary usury laws and those controlling the mortgage practice, different forms of rent restriction have been applied. During the War and subsequent period of chaotic economic conditions rent restrictions were quite generally imposed in European countries, but only to a very slight extent in this country. But the emergency and the economic need for restricting rentals have disappeared since 1920, and rent regulation is rarely found in the most recent legislation. Where found, it is imposed as a condition incident to the receipt of government assistance in the form of grants or self-liquidating loans. The consensus of opinion is that government rent restriction is undesirable, cramps individual initiative, and reduces government revenues from housing and building resources.

Tax abatement has also been applied to encourage the building of low-rental homes for minimum-income groups by private initiative and by limited dividend corporations in this country, the public utility societies in Great Britain, and coöperative housing societies in other countries. Although the remission of taxes has many advocates, particularly among social welfare workers, it is not favored by most economists. It adds a tax burden to all other property and, in the face of an increase in tax load, reduces the resources from which government revenue must come.

According to popular interpretation, some form of direct financial assistance is usually meant by "government aid to housing." Of three forms of such assistance, that represented in the service rendered by our own Home Loan Bank System seems most clearly to be a governmental function of broad usefulness and great importance. It conserves and develops home credit for the individual, reduces the cost of financing, and increases the liquidity of the home asset. These desirable ends are accomplished through standardization of long-time financing practice and through the same method of averaging risks as that used in the insurance business. Through consolidation of loans, the risk on the individual home is minimized, justifying a lower mortgage rate. The soundness of this sort of government housing aid is well substantiated by the much older *Crédit Foncier* of France and the *Landesbank* of Germany.

Of the two other forms of financial assistance, the more common has been the extension of government credit toward the cost of construction. The rates of

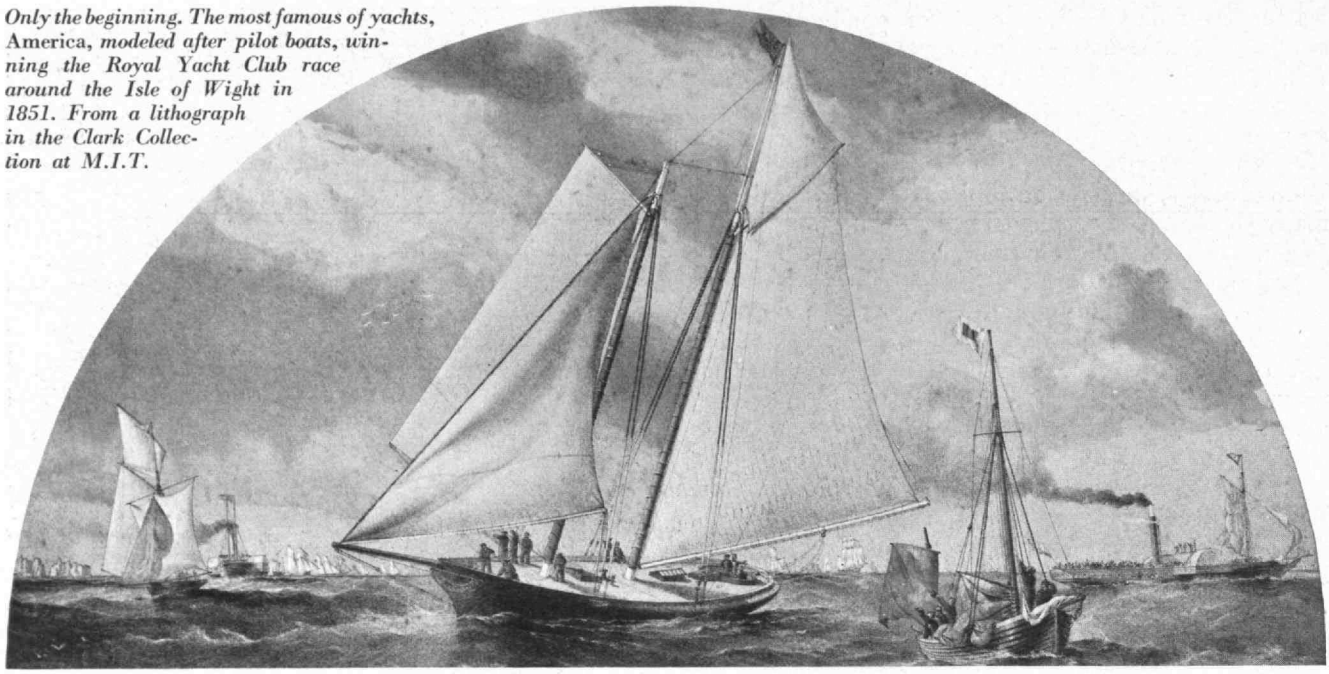
Chicago Aerial Survey

Housing on the West Side of Chicago — a study in congestion

interest imposed have been relatively low and the principal amortized over a series of years. This method has been used extensively in Europe since the War, notably in Germany. Such credit has mostly been applied to minimum housing and to community developments and to slum clearance projects, when private capital and initiative had failed or seemed inadequate to provide the housing considered necessary for social and economic welfare. The system has also been used in several countries to aid the individual home owner.

Where ultimate occupancy was really limited to the low-income groups for whom the housing was intended, and where government conditions regarding materials and labor to be used involved no extra cost compared with unaided construction, the results have apparently been good. Most housing experts have commended this practice and the results obtained. Certainly the post-War conditions in Europe created an emergency much better met, where possible, by extension of credit than by direct and extensive grants as in England.

GRANTS and subsidies toward the capital cost of homes for private occupancy have been used to a far greater extent in Great Britain, especially since the War, than in any other country. Certainly the post-War housing shortage and economic emergency demanded prompt action of some sort. Any means by which industry might be quickly restarted, and in a field in which employment might be broadly scattered and made quickly available, justified the ends. But viewed from afar and from these times, it seems a grave economic blunder to have committed the nation to so large a tax burden — extending even to generations unborn — for yearly subsidies paid toward the capital cost of extensive housing projects for private occupancy. In doing so, according to the consensus of opinion in Great Britain itself, the cost of government-aided housing was greater than that built concurrently without aid; also, relatively few of the low-income groups for whom the housing was intended were able to use it. The ultimate cost to the British nation for its post-War government aid has been estimated by (*Continued on page 320*)



Only the beginning. The most famous of yachts, America, *modeled after pilot boats, winning the Royal Yacht Club race around the Isle of Wight in 1851. From a lithograph in the Clark Collection at M.I.T.*

Wind and Water

America's Cup Yachts — Aspects of their Design and Performance, with Notes on the Rainbow *(U.S.) and* Endeavour *(G.B.) Now A-Building*

BY G. THAYER RICHARDS

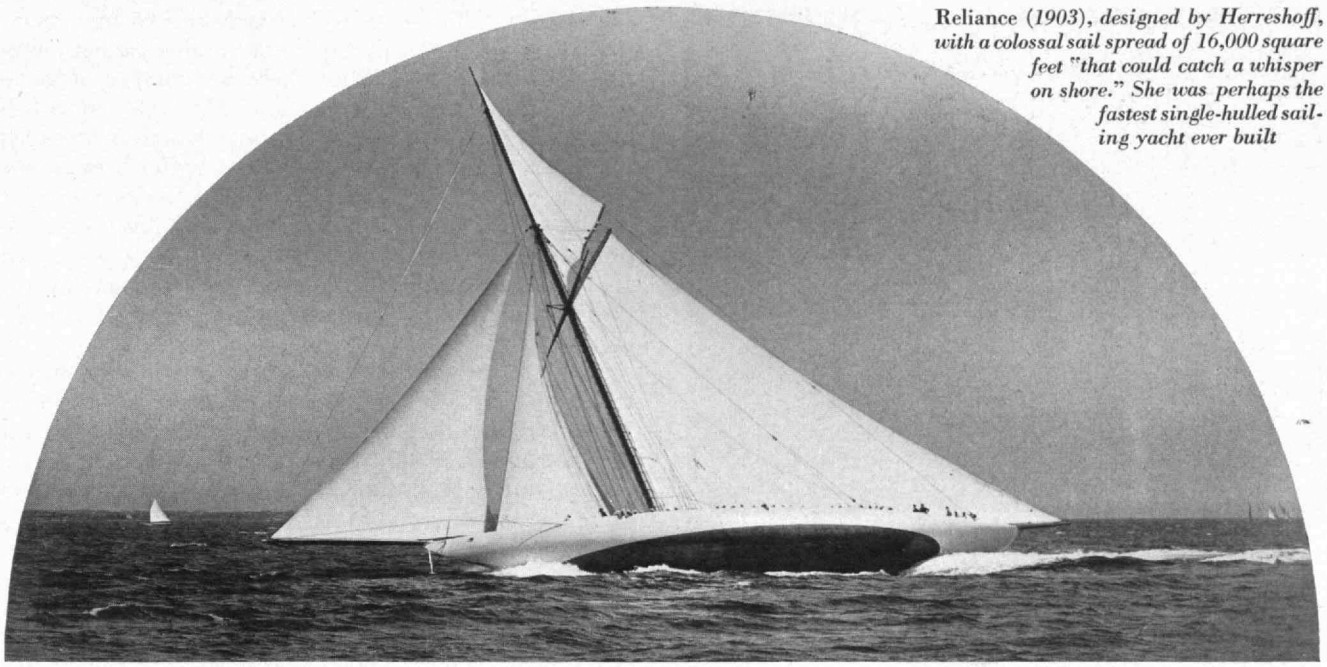
ENDEAVOUR, the newest British aspirant for the America's Cup, has just been launched at Gosport, England, and on this side of the water, preparations for the defense of the trophy are rapidly going forward. One new boat, *Rainbow*, is being built, and two of the four defense candidates of 1930, *Weetamoe* and *Yankee*, are being altered to compete for the honor of defending the cup next September.

One hundred guineas was the original value of the cup offered by the Royal Yacht Squadron in 1851 to the winner of a yacht race around the Isle of Wight. The schooner yacht, *America*, an unknown vessel from a barbarous land, defeated the flower of the British yachting fleet and won the cup for her owners, who deeded it to the New York Yacht Club. "The America's Cup," as it is now called, has been held ever since as a perpetual international challenge trophy, and fortunes have been spent on both sides of the Atlantic in contesting its ownership. Fourteen yachts, British and Canadian, have unsuccessfully tried to recapture it. A fifteenth challenge is pending, the races to be sailed next September.

America's superiority was an outgrowth of the hard school of experience. In those days the New York pilots competed with one another; the pilot boat which was first to reach an incoming vessel and put a pilot aboard earned a fee for her owners. So they raced mercilessly far out into the Atlantic, and only the winning boats earned their keep. *America* was modeled after the pilot boats with a long, concave bow, and flat, efficient sails which were altogether different from the clumsy British yachts of the day. She ran away from the entire fleet of them.

That the America's Cup has remained on this side of the water, in spite of the many determined attempts to "lift" it, speaks well for Yankee brains, initiative, and thoroughness. The British designers have always seemed to be trying to win the race already sailed, while the defenders have been planning ahead.

Reliance, the defender of 1903, marked a turning point in the design of America's Cup yachts. At that time the competing boats were designed to a given waterline length, 90 feet in this case, and raced with a time allowance based on sail area. *Reliance's* colossal sail spread of 16,000 square feet was balanced by a very deep and heavy fin keel. (See picture, page 300.) Since overall length was not measured, her shallow, scow-like hull was given very long, flat overhangs at bow and stern. When she heeled over in a breeze, her waterline length increased from the measured 90 feet to about 120 feet, and her center of buoyancy shifted some distance to leeward, greatly increasing her stability. She was somewhat penalized for her excessive sail



Reliance (*1903*), *designed by Herreshoff, with a colossal sail spread of 16,000 square feet "that could catch a whisper on shore." She was perhaps the fastest single-hulled sailing yacht ever built*

area, and had to allow the challenger, *Shamrock III*, nearly two minutes on each race. But in spite of this handicap she easily won the series.

Reliance was perhaps the fastest single-hulled sailing yacht ever built (she could make 16 knots under ideal conditions), but a most undesirable type. The terrific strains imposed on her lightly-constructed hull by the pounding of her long flat overhangs and the wrenching of her lead mine of a keel would quickly have knocked her to pieces in a heavy sea. Moreover, her 20-foot draft was far too deep for navigation in many channels. Her type was so strongly objected to by yachtsmen on both sides of the water that she virtually doomed the rule to which she had been built. Her designer, Nathaniel G. Herreshoff,'70, helped to formulate a new rule of measurement, called the Universal Rule, intended to produce a healthier type of boat.

The challenger and defender for the next series of America's Cup races were built to a specified waterline length as before, this time 75 feet, but the Universal Rule was used for determining time allowance. The defender, *Resolute*, was again designed by Herreshoff. She was a much more weatherly type of boat, although very lightly built. With much less overhang, easier sections forward, and less draft and sail area, she took a minimum of penalties under the new rule. Charles E. Nicholson, who designed the British challenger, had never before built a boat to this rule. Remembering the ease with which *Reliance* had saved her time, he decided to build what he conceived to be the fastest yacht of 75-foot waterline. The resulting job, *Shamrock IV*, was heavily taxed on her powerful flat U-shaped overhangs and somewhat on her sail area. She had to give the defender about seven minutes on each race. In spite of this handicap, she came closer to winning the cup than any challenger before or since.

Shamrock IV was intended for the stiff winds and smooth waters in which British races are sailed. On this side of the water, the heavy Atlantic swells pounded on her U-shaped ends and checked her momentum. She was so wide and carried her buoyancy so high that in a gentle breeze with a swell abeam, she did not heel enough to let her sails draw steadily, yet rolled badly. She floundered, "mussed around," and spilled the wind.

The *Resolute-Shamrock IV* series caused considerable dissatisfaction. The time allowance (which, as it happened, did not alter the result of the series) was misunderstood by the public. The two yachts were so different in type that, while they started together and sometimes finished close together, they usually sailed far apart during most of a race. *Resolute* was much better to windward, and *Shamrock IV's* extra sail area made her faster before the wind. At times they were so far apart as to be sailing on different winds. Such races depend too much on luck, are a poor test of boats and helmsmen, and are uninteresting to watch.

One of the races was postponed because a 25-mile breeze was considered too severe. The postponement was first suggested by the race committee, but the yachts took the blame in the eyes of the seafaring world. Their extremely light hull construction was severely criticized, although their rigging was probably more vulnerable and would have come to grief first.

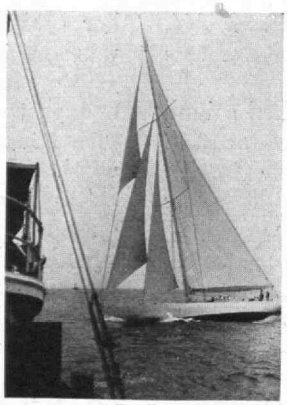
Yachts contesting in the next series, that of 1930, were required to be built under Lloyd's yacht scantling rules, to ensure sturdier construction which would make them more suitable for cruising purposes. An even more radical change in the rules resulted from an agreement to design the yachts to the same rating under the Universal Rule — Class J, and race them, boat for boat, without any time allowance. This simplification of rules has contributed greatly to the public's understanding of the races.

The Universal Rule is intended to produce wholesome, seaworthy yachts, not mere racing machines. A relatively small sail area is allowed in comparison with former racing practice for yachts of equal length and

Jones

Lipton's Shamrock V, *during the races of 1930 with the* Enterprise

displacement. The rule credits displacement and specifies a minimum freeboard. It limits draft, and penalizes long, U-shaped overhangs in the interest of seaworthiness. Yet it allows the designer some latitude in the choice of length, breadth, and displacement. If he chooses a short hull, he is allowed to use comparatively little displacement, and can produce a boat with less wetted surface, which is an advantage in smooth-water sailing in light winds. If he wants to use a longer hull, he is forced by the rule to increase displacement, while at the same time he is allowed slightly *less* sail area than before. Yet a longer hull is more powerful, can be driven faster in heavy weather, and is less disturbed by swells, so there is much to be said for making the slight sacrifice of sail which is necessary.



The Enterprise—Jones

Enterprise, designed by W. Starling Burgess, was the shortest and lightest of the four candidates for defense in 1930 — so short and so light that subsequent changes in the rule have made her impractical for this year's races. *Shamrock V*, also a relatively small light-weather boat, was handicapped in very light breezes by the greater skin friction of her wooden planking as compared to *Enterprise's* polished bronze underbody.

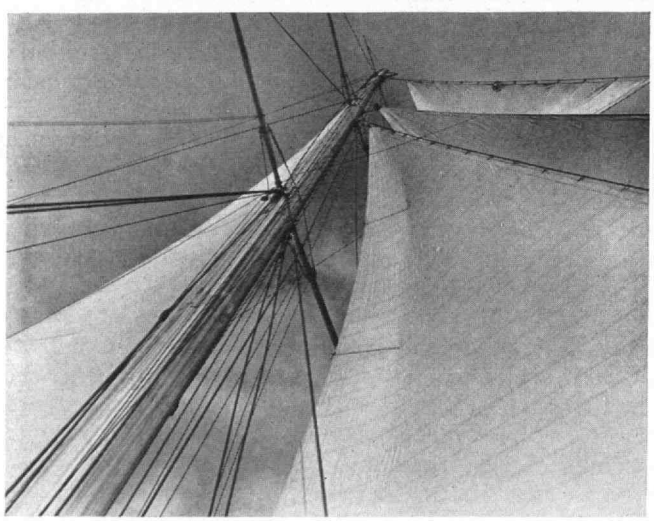
Rigging and handling were the decisive factors in *Shamrock V's* defeat. Her mast and rigging would have been far too heavy even if *Enterprise* hadn't had a super-light duralumin mast. They made her heel over too far in a strong wind. Excessive heel not only reduces the effectiveness of a yacht's sails for driving her forward, but introduces a downward component of force which tends to bury her, and materially increases her displacement and wave-making resistance.

Enterprise's highly scientific rig presented a violent contrast to the challenger's old-fashioned man-power-operated layout. Her duralumin mast made history, but there were many occasions on which it would have gone overboard if lynx-eyed experts below deck had not been watching the tension gauges on its stays. Numerous winches, below deck also, contributed to rapid, decisive sail handling. Two-thirds of *Enterprise's* 35 men spent their time below operating these various gadgets with well-drilled precision. With these advantages, it is no wonder that *Enterprise's* wide-awake amateur afterguard put it all over the professional captain who sailed *Shamrock V*. *Enterprise's* mainsail set better because she had the proper equipment to make it do so. *Shamrock V* tried to improve the set of her mainsail by the use of brute force, and broke her halyard. *Enterprise* had guarded against this danger by using a two-part halyard which could be shifted to prevent excessive wear on any one spot.

Many of the winches used below deck on *Enterprise*, which the British discovered to their amazement in 1930, had been used on *Reliance* in 1903, and again on the *Resolute* in 1920. While efficient for racing, these devices clutter the interior of the yacht and destroy her usefulness as a cruiser. So a new ruling has been put into effect which requires the crew of the yacht to live aboard during the racing season. There is no longer any space for winches below deck, and the necessary cabin fittings and equipment add considerably to the weight of the boat. This rule makes for fairness to the British challenger, which must sail across the ocean.

Enterprise's featherweight mast, which bent alarmingly in a stiff breeze in spite of its scientific staying, was also impractical for an all-around yacht. So another new rule has specified a minimum weight and diameter for the mast, and a minimum height above the deck for its center of gravity. Both these new rules add to the tophamper of a yacht, the overturning influence of which must be counteracted if her stability is to be maintained. If these changes were made on a boat of such light displacement as *Enterprise*, her speed would suffer severely. So she is out.

Since *Shamrock V* went home in 1930, the British have been experimenting with Class J yachts. T. O. M. Sopwith, who has since challenged for the America's Cup, acquired *Shamrock V* and (*Continued on page 330*)



Jones

Looking up the famous duralumin mast of the Enterprise

A Platform for Business

Suggested Elements of a Social and Economic Policy

By Ralph E. Flanders

THE term "business" in this platform is confined in its application to those activities involving land, labor, capital, and management which are essentially wealth-producing, whether in the fields of extraction, manufacture, transportation, distribution, or financing.

There are other activities which are not productive but destructive, and thus do not deserve the honorable name of "business." They are to be found to a certain extent within the structure of business proper, in the form of unfair and harmful trade practices, but their greatest development has been as malignant financial and speculative growths which are for the most part engendered and nourished by individuals who cannot properly be called "business men."

+ + +

There has been a failure on the part of honest observers of the industrial process to distinguish between true business and these parasitical practices. This failure to distinguish threatens business with kinds and degrees of control which will seriously curtail its ability to produce and distribute wealth.

The productive capacity of business is such that if it is fostered in its present and future development it can increase the production and distribution of wealth to all classes of society, to the disadvantage of none.

+ + +

Continued improvement in machinery, processes, and management will operate, as in the past, to increase in a favorable sense the spread between wages on the one hand and the prices of consumer goods on the other; in other words, it will raise the standard of living, which has never been anything but miserably low for millions of willing workers, even in our periods of greatest prosperity. The operation of industry on a profitable basis is dependent on this policy.

The government is making unprecedented expenditures to relieve destitution and increase employment. These expenditures can be continued and the accumulating indebtedness can be discharged from only one reservoir of wealth — the profitable operation of constructive business.

As this crisis is overcome and business again takes a more normal course on a higher plane of productiveness, it may well offer to support an advance in social standards whose beginnings are already foreshadowed in recent administration policies. In coöperation with government, it can secure that fundamental human right in an industrialized society — the right to work at socially useful tasks for wages which will insure subsistence. If given freedom to produce, business should be able to underwrite that social policy in good times or in bad, whether for thousands or millions, and still be able to reabsorb these workers into its normal operations in the degree that those operations are restored.

The unrealized productive capacities of business are such that, if we are wise and prudent in our policies, even further social sureties may be established in their turn and all without reducing the returns to any productive element of society.

+ + +

The fostering of healthy enterprise in business will benefit agriculture in two ways: by lowering relatively the prices of goods which the farmer buys, and by raising relatively the prices of the products he sells. It can effect this spread more surely than it can be accomplished by any imaginable monetary policy and on a more permanent basis than by any elaborate mechanism of control.

Prices of goods purchased can be lowered for the farmer as for the worker by encouraging the progress of improvement in production instead of discouraging it.

The process of raising the prices of farm produce is more indirect but is fundamentally sound. Farm produce is largely, though not entirely, composed of items of comparatively inelastic demand. The products of manufacture are largely, though not entirely, composed of elements which have a very elastic demand contributing to unsatiated desires of masses of unsatisfied people. Under proper development other types of business may therefore be expected to grow relatively to agriculture. Farmers producing under marginal conditions will be drawn into the more profitable operations of industry, thus reducing agricultural supply more nearly to fit the inelastic demand, and raising prices in the process.

This is the natural, unregimented remedy; and it applies as well to other over-developed occupations, such as that of soft-coal mining, whose problems will never be settled with the best will in the world until the number of miners is reduced.

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The generous profits from a free and healthy development of business form the only source from which government can finance its present elaborate expenditures and the expenses of a developing social program.

+ + +

It is evident that the social and economic benefits just described cannot be attained without important changes in attitude and policy on the part of all elements in the social structure.

Labor must be willing to govern its requests by the over-all requirements of the industrial process, and not by immediate self interest. *(Continued on page 332)*

Financial Integrity of Engineers

"AMONG professional men, engineers are the best pay," writes Henrietta Ripperger in the April *Atlantic Monthly*. Her article, "The Kept Student," presents the findings of a nationally known foundation (presumably the Harmon) which has had outstanding loan contracts, involving almost $1,000,000, with students in more than a hundred American colleges.

"It has been said," notes Mrs. Ripperger, "that engineers are the happiest of God's creatures. They deal in facts; they see a task, and they do it. Their work, always difficult and challenging, seldom proves impossible. They have a tradition of accomplishment. It is merely in keeping with their whole habit of life and thought that, if they have debts, they try to pay them. It is interesting to note here that the kind of mental training they have had seems directly to produce responsibility in money affairs, a result of education so unusual as to be unique!" Mrs. Ripperger finds that ministers are the poorest pay.

Below: *Crystal table set. The center-piece is composed of many glass rods set on end in a spiral arrangement and glowing from concealed light. Delicate stemware decorated with a spiral, sand-blast design provides the motif for the table.* Right: *Crystal plate and glasses, recipients of the award of merit at last year's exhibition of the National Alliance of Art and Industry. Both groups were designed for Steuben, Inc. by Walter Dorwin Teague*

The Trend

American Glass Renaissance?

AESTHETIC GLASS design in this country has been until recently sorely lacking in originality. The current Encyclopædia Britannica, which devotes many pages to illustrations of contemporary design in other countries and to American glass of past eras, dismisses contemporary American glass design in a single sentence.

But a few American firms, abetted by gifted designers, have been steadily working toward new forms and applications for glass in harmony with the modern trends in architecture, painting, and sculpture. These new developments range all the way from liqueur glasses to monumental sculptured glass.

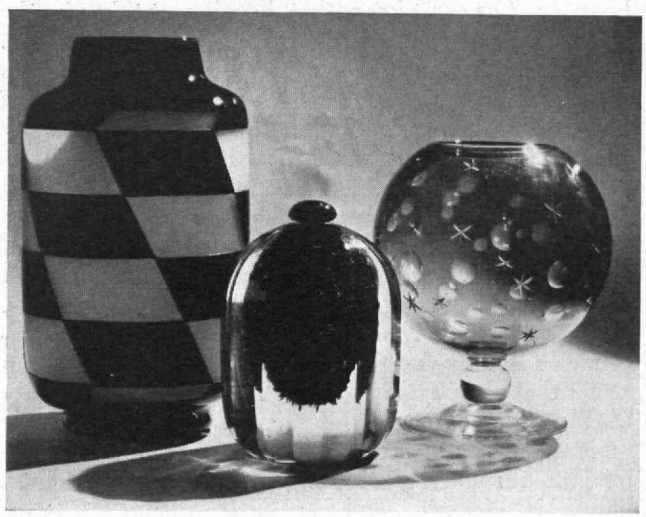
René Lalique, the first glass designer in Europe who fully recognized the artistic possibilities of clear glass in its own right, has strongly influenced most of the new work in America. He pioneered a type of glass statuary which achieves an austere brilliance thoroughly in accord with the modern conception of the beautiful. He also was the first to use sculptured glass as a part of monumental architecture, especially in conjunction with steel.

Many new architectural uses for sculptured or cast glass are being developed in this country. Notably on the exterior of the new Syracuse Lighting Company Building, illuminated glass pylons and spandrels give a unique scheme of night lighting. For interiors, illuminated glass columns, cornices, balustrades, fountains of light, and other new types of lighting fixtures are coming into use. Wall and ceiling panels are especially popular. They may be solid reliefs or intaglios, or pierced grilles. A translucent satin finish is often used for portions of the panel to bring out the design by contrast, giving a solid panel somewhat the effect of a translucent grille.

# of Affairs

Panels are sometimes left unfinished, with a slight, interesting texture following that of the mould. Some panels admit daylight; others are illuminated from behind, or backed by mirrors to duplicate the design. Striking effects are obtained by lighting the panels from above or below, or through the edges of the panel itself, giving the design translucent high lights which would be impossible in any other material.

The monumental sculptured glass entrance of the RCA building (New York City), an abstract composition in glass panels 55 feet wide by 15 feet high, portraying the cosmos, is unique. A new structural technique and a new large unit of sculptured glass had to be developed by the Corning Glass Works to achieve the sweeping pattern in high relief which the sculptor, Lee Lawrie, and the architects desired. Owing to the great variation in thickness of the panels, from four and a quarter to one and a quarter inches, Pyrex glass had to be used to withstand temperature changes. Wind pressures, too, are severe, and vertical steel bars brace the structure throughout and are keyed to each corner of every block.



Above: *Sculptured glass entrance of the RCA Building (see adjacent text).* Left: *(1) A jar made in alternate layers of black-and-white opaque glass, the black being etched away to reveal a bold geometrical pattern in white; (2) scent bottle, cut in vertical facets to accent its brilliance, of crystal with a black center, the latter dotted with shiny bubbles; (3) bowl of deep blue cased over crystal, with pattern of moons and stars cut through blue*

A totally new creation in abstract design, this entrance raises glass to a new level of architectural importance. Never before has glass been used in the execution of detail for the focal point of a monumental entrance.

The glass wall gives a sense of movement, both in the sweeping comet arcs and astral ellipses of its design, and in the actual flicker of its many facets as seen by a moving observer. The wall lights the interior of the building excellently.

Simplicity and proportion are all important in the modern style of glassware which, like other modern styles, is a combination of classicism and mechanics. Long, straight lines, often vertical and sometimes with entasis, blend into simple curves of classic strength and grace. Chaste design gives full effect to rich material and rare craftsmanship. Where sculpture is used, it is highly stylized, suggestive rather than naturalistic. Decoration, if there is any, is a restrained repetition of simple forms and decorative motifs, a subtle under-statement.

Handmade glass still retains its superiority over more modern methods of manufacture. Mouth blown, hand cut, and hand engraved, its technique is almost exactly the same as it was 300 years ago.

Last summer thousands of glass lovers journeyed to Cape Cod to see an exhibition of early American glass. Is American glass of the Twentieth Century destined to provoke comparable enthusiasm in the future?

Power Station Robot

A NEW plan for making expensive electric power house equipment operate more effectively (see drawing, page 306) has just been developed by Professor L. F. Woodruff, '18, and Mr. J. E. Mulligan, '33, of the Depart-

ment of Electrical Engineering at M.I.T. Professor Woodruff is known to Review readers as the author of the now notable article on the mathematics of bridge playing which appeared in these pages in January.

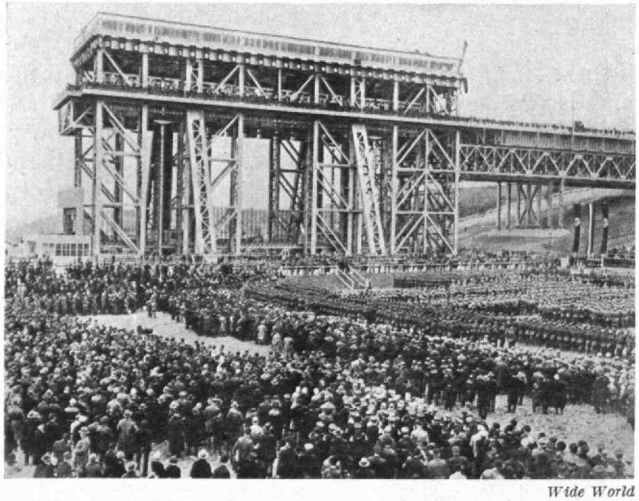
One of the sources of greatest expense in the equipping of a modern power station has been the necessity for providing numerous circuit breakers whose duty is to clear from the system those sections in which faults or short circuits have developed. The currents may sometimes reach 100,000 amperes. Breakers in each circuit, with such capacities, are tremendously expensive. In the new system, a model of which has been shown in operation at Technology, a special switch, operating far more rapidly and dependably than any human operator, in less than a tenth of a watch tick automatically connects any faulty line to a single *circuit breaker*, which opens the circuit, and immediately afterward returns to position to take care of another fault should that develop. A single circuit breaker is thereby enabled to protect an almost unlimited number of circuits with a consequent saving of equipment.

Electrical World, commenting editorially, declares the new device to be a "thoroughly practical . . . and an important step in simplification of industry practice and in making useful equipment work harder."

Good Use for Bad Stuff

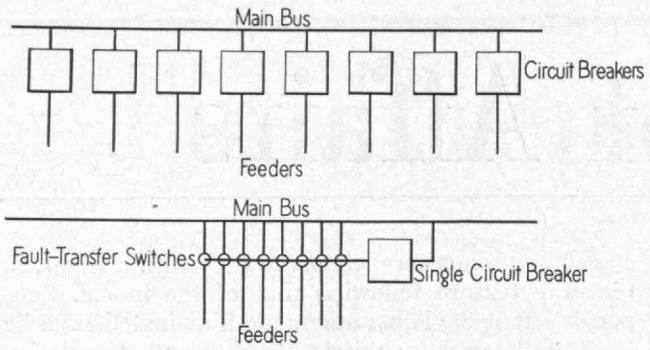
CYANIDE has a bad reputation deservedly. It is one of the quickest and most powerful of poisons. When we meet it in the news, we find it in the company of criminals and unsavory characters, in lethal chambers for murderers, in the extermination of cockroaches and other vermin, human or otherwise, but commonly not in the company of doctors and clergymen. It is bad medicine, stuff to leave alone — and we are refreshed to learn, as we have lately done, that it has a new and special use in the clinic and supplies to physicians a means by which they may secure a better understanding of the functioning of our inner mechanisms.

The physician wishes to know the pulse and temperature of his patient. If the heart is under examination, he can learn much more about it by the use of the electrocardiograph, about its otherwise imperceptible irregularities and peculiarities. But he wishes also to know something about the efficacy of the heart considered as a device for pumping the blood. Obviously two hearts which have the same rate are not necessarily of equal efficiency as force pumps. The physician wishes to know how long it takes for the blood to circulate through the body, or, if he can't know that, how long it takes for the blood to circulate through a certain part of its course. Accordingly, when he wishes to make the test, he injects into a vein in the patient's foot a very small amount of a very dilute solution of sodium cyanide, and he sits by the bedside with his watch in hand. The cyanide is carried along in the blood stream. When it reaches a certain organ, it produces a momentary paralysis of the respiratory centers, and the patient gasps. In the case of an extremely inefficient heart, the elapsed time between the injection and the gasp may be as much as 90 seconds.



Wide World

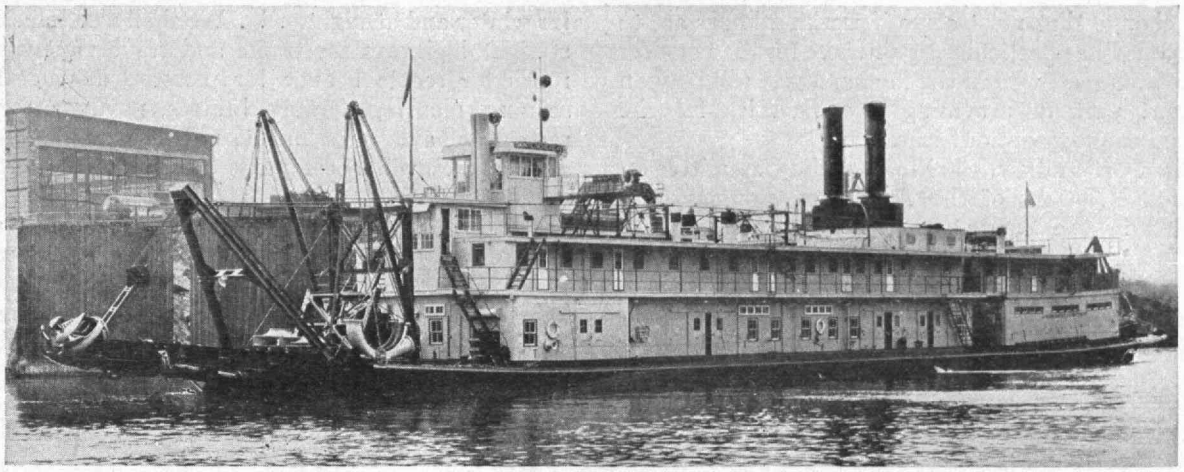
Largest ship elevator. Built at Niederfinow on the canal connecting Berlin with the Baltic, it raises a ship 115 feet in five minutes



Schematic diagram showing (at top) present method of protection with one circuit breaker in each feeder; and (lower diagram) Messrs. Mulligan and Woodruff's system using a single circuit breaker for the entire group

The procedure has a certain element of the tragicomic in it. Imagine the patient's feelings if he should know that it is cyanide which has been injected into his blood vein. Imagine his surprise when he suddenly finds that he is unable to breathe for a moment. And imagine the gravity of the physician with watch in hand, his solemnity, and his bedside manner. The information which the test supplies, however, is of value to the physician and hence of benefit to the patient. To the student of chemistry it is interesting to know that cyanide, even a very small amount of it, may be introduced into the blood stream in this fashion.

Claude Bernard, the founder of experimental medicine, showed long ago that a very small quantity of cyanide if taken into the body passes through it unchanged. The cyanide does not react chemically with anything in the body but apparently poisons by being present. It perhaps affects the catalysts or enzymes which exist in the body and upon which the maintenance and coördination of bodily functions evidently depend. A simple experiment illustrates the action of cyanide upon a catalyst. If a small amount of spongy platinum is added to a solution of hydrogen peroxide in water, the liquid previously tranquil commences to effervesce vigorously with the evolution of oxygen from the decomposition of the peroxide. A few drops of cyanide solution stop the effervescence at once by poisoning the catalyst and stopping the catalytic action of the platinum.



Westinghouse

Sainte Genevieve, *self-propelled pipe-line dredge of the U. S. Engineers Corps*

Cyanide kills quickly, in such short time that it seems impossible for the poison to have diffused from the place where it entered the body to the place where its action would be effective. Cyanide combines readily with oxygen and with sulphur to form non-poisonous cyanate and thiocyanate. These substances are naturally present in the body, thiocyanate in the saliva and cyanate in the blood and urine. The hypothesis has been put forward that cyanide introduced into the body reaches a nerve fiber and takes the sulphur away from the thiocyanate which exists in the tip of the nerve, leaving cyanide in the nerve and itself being converted into inert thiocyanate, that the cyanide now present in the nerve acts upon the thiocyanate in the next portion of nerve fiber, in such manner that cyanide at one end of the nerve produces cyanide at the other almost instantaneously by a process similar to electrostatic induction without the transfer of actual substance. We have read an account of an experiment in support of the hypothesis. It was claimed in print that the experiment had been carried out. A dog was fastened securely in a two-bladed guillotine, a dose of cyanide was placed on his tongue, and as soon as possible thereafter the knives of the guillotine were made to fall. The dog's head and tail were cut off simultaneously — and cyanide was detected by chemical tests on the tail. This is a tall story, we admit. We haven't seen the experiment, and we'll believe it when we do see it. In the meantime, the tale is not without merit as fiction.

Records of Historic Engineering Structures

IN APRIL we commented on the importance of the Historic Buildings Survey sponsored by the Federal Government. The *Engineering News-Record* has suggested with pertinence that this work be extended to include notable engineering structures.

"The nation should have a permanent record of the details of such structures as the Brooklyn Bridge and the Eads Bridge at St. Louis, as well as of the few remaining wooden bridges, of the D. & H. Canal aqueduct at Lackawaxen, Pa., of the great water wheel of the Burden Iron Works at Troy, N. Y., and of some of the large reciprocating pumps of some of our old water-supply systems. Many of these structures marked definite periods in engineering progress and they are fast disappearing. A record of them will be no less valuable to future generations in appraising progress in the past than will be the record of the homes and public buildings of the past."

Significance of Leisure

THE prospect of increasing leisure in a planned economic system in which there will be a still greater shortening of working hours has raised a problem, the solution of which will eventually entail the education of millions for the intelligent use of the added time at their disposal.

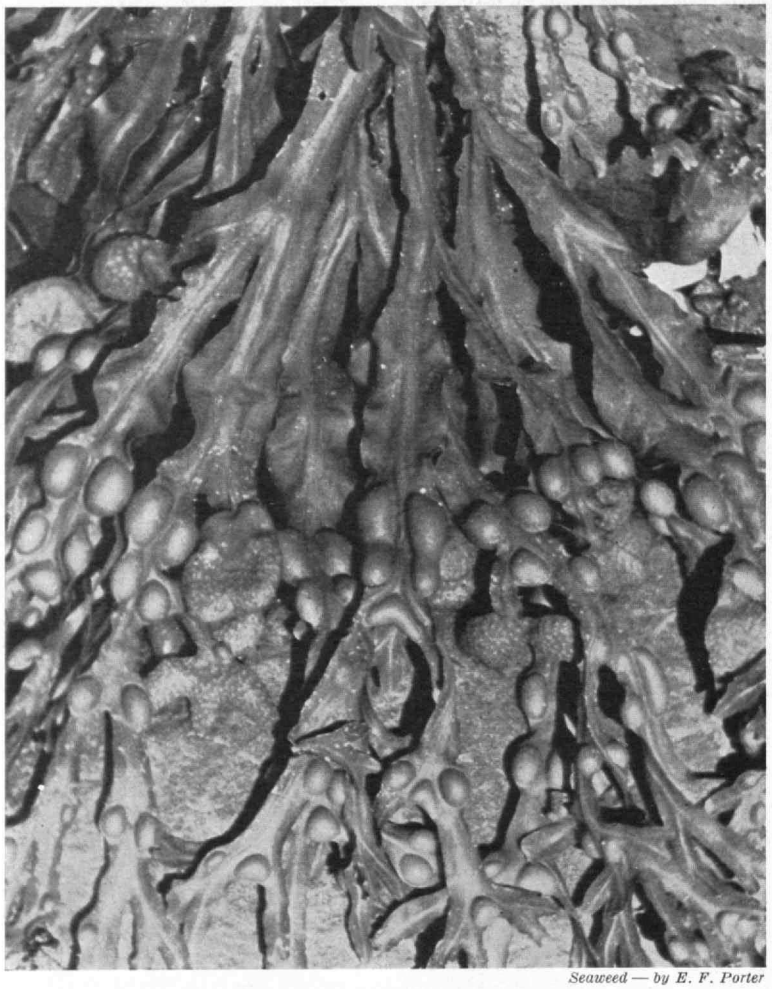
To the individual with broad interests the problem of what to do in leisure time has never been a difficult one, for the possibilities are limitless. But to millions whose lives have been devoted almost exclusively to the task of earning a living, leisure may mean empty idleness.

Just what constitutes leisure time is defined by Ida Craven in the Encyclopædia of Social Sciences as the time at the disposal of the complete man, not the man who is exhausted by 14 hours of labor or eight hours under a speed-up system and worried by insecurity. It is not leisure which gives the worker only sufficient time for recreation to freshen him for continuing his toil.

Evening on East River — C. R. Phipps

The change that must come if working hours are to be shortened has particular significance for the engineer and the architect, who in the final analysis will play an important part in providing new facilities for the beneficial employment of leisure.

William Orr Ludlow, Chairman of the Committee on Industrial Relations of the A.I.A., in a symposium published in the current *Architectural Record*, suggests that additional leisure will have a definite effect on the architecture of the future; that there will be a demand for the kind of building that leisure time will need.



Seaweed — by E. F. Porter

Directing attention to the revolution in our manner of living brought about by the automobile, Mr. Ludlow prophesies that the process of decentralization now apparent in large cities will result in a movement of all residences, amusements, and shops to outlying communities, leaving the cities as centers of business and for the distribution of passengers and freight.

And he adds: "We are going to turn our attention to parks, municipal and national, and the building of swimming pools, outdoor gymnasiums, and country hotels. The additional leisure will also promote buildings of many sorts for indoor recreation and amusement. Theaters and movie houses will flourish, great gymnasiums for football, baseball, tennis, skating, and the like will be built to make outdoor sports possible indoors for winter and at night. . . . We shall also build many straight highways for traffic and travel, and winding roads for scenic beauty for pleasure driving. Landscaping, planting, flowers, bridges, pavilions for rest, recreation, and refreshment, public playgrounds and golf courses will accompany these in ever-increasing numbers."

The *Architectural Record's* symposium includes a bibliography of publications relating to leisure, as well as the results of a study of the leisure hours of 5,000 people recently completed by the National Recreation Association. This study was to determine what people are doing in their spare time, what changes have occurred in the use of free time in the past few years, and what people would like to do if the opportunity were afforded.

The list of activities desired by most people, the study showed, includes: tennis, swimming, boating, golf, camping, flower gardens, playing musical instruments, automobile riding for pleasure, attending the legitimate theater, skating, hiking, amateur dramatics, fishing, listening to the radio, attending movies, picnicking, motor camping, attending free concerts, gymnasium classes, and reading fiction.

These activities, which were given in the order of expressed desires, suggest possibilities of the future. Outside activities lead, and the things most desired can be had only at some expense to the individual for equipment, instruction, or admission costs. More than half the activities desired cannot be provided by the individual because they involve facilities, organization, or other special provisions by public or private agencies. It is interesting to note that activities which train for jobs or have a direct economic value which might accrue from adult education do not appear on the list.

Despite the fact that hobbies involving the manual arts and handicraft do not appear among the desired activities, this type of avocation is increasing among certain groups. The increase in the variety of equipment now offered for the home workshop is one indication of a growing interest in this field. The cost of tools and power machinery for the amateur worker has been brought within the purchasing power of the man of moderate income.

New Hampshire already has a state division of arts and crafts which supervises the leisure activities of children and adults, and offers them instruction in the practical arts and helps them to market their work.

Last month the governors of all the New England States met to consider the recreational activities of their states and the utilization of the new facilities provided through the work of the CWA and PWA, including such projects as playgrounds, parks, mountain trails, camping locations, and community garden areas.

In the realm of home gardening, increasing interest in flowers and further development of the domestic vegetable plot should result in some sales of seeds,

garden tools, and auxiliary equipment. Home gardeners are handicapped by the excessive prices for commercial fertilizers. A reliable fertilizer at a moderate price is one of the urgent needs of the amateur gardener.

With increasing public interest in various forms of athletics should come a demand for sports equipment of good quality and moderate price. Tennis, once looked upon as a sport of the fortunate few who had their own courts, is now the pleasure of thousands through the development of community tennis courts. Golf, once an expensive pastime, is rapidly becoming a general public sport available to the average citizen on municipal courses.

The automobile manufacturer has already shown what can be done in producing reliable transportation at a price within reach of millions. Camping equipment, while not excessively expensive, might be made available to a much greater number of people by methods of production permitting still lower prices. Because of the great loss of valuable timber, open fires are forbidden in almost every state that offers camping attractions. The compact and safe camp stove, of which there are already several excellent types, is already an important field and one which seems to offer opportunities for the future.

Although remarkable progress has been made in bringing small boats within reach of the man of average means, the initial cost and the expense of winter storage still is prohibitive for thousands who are eager to enjoy the sport. This is a stimulating field for further study, and there are many others which will be suggested by analysis of the various factors which enter into the utilization of leisure time.

At Home and Abroad

AS A survey of the pages of The Review since January indicates, 1934 finds engineers continuing unabated their pace of accomplishment, ringing changes on largeness, setting new precedents in ingenuity. To round out this month's budget of international news, The Review's observer submits these further items:

England. In July King George will open the world's largest under-water tunnel, the Mersey, connecting Liverpool and Bootle with Birkenhead and Wollasey. The external diameter of this vehicular tunnel is 46 feet three inches, the length 2.13 miles (the Holland Tunnel is 1.75 miles long), the capacity 4,150 cars an hour, with four lines of cars, spaced 100 feet apart, moving at 20 m.p.h.

At Newport, England, early this year the Duke of York opened the world's tallest vertical lift bridge. Similar bridges across the Hudson at Albany and Troy have longer spans (341 feet compared to 274½ feet).

Italy. Guglielmo Marconi recently announced the widespread electrical treatment of seeds to enhance their productivity. More than 3,000 individual experiments have been carried out, as part of a scientist-directed program, to make the nation as self-sustaining as possible agriculturally.

Germany. In the presence of Hermann Goering, Premier of Prussia, the largest ship elevator in the world was dedicated last month at Niederfinow on the Hohenzollern Canal connecting Berlin with the Baltic. (See picture, page 306.)

United States. In Caddo County, Okla., work progresses on the Adak Noc oil well, at last report 9,982 feet deep. Requiring the greatest amount of casing ever set (257,064 pounds) and the largest amount of cement (3,000 sacks) the well sets records in petroleum engineering.

E. F. Porter

The world's largest trailer (see picture, page 310) has been built to handle the largest steel pipe in the world for the world's largest dam (Boulder). With 16 wheels, 8 axles, and 32 tires, it carries one 185-ton section of pipe.

Steam Girds Itself for Battle

By MYRON W. DOLE

IN ORDER to meet the competition of the parvenu Diesel and electric locomotives, the present operating costs of the venerable steam locomotive (it is about 100 years since its introduction) must be materially reduced by increasing its efficiency and by decreasing maintenance, labor, interest and depreciation costs and any other charges that may properly be made against it. It is the purpose of this article to point out

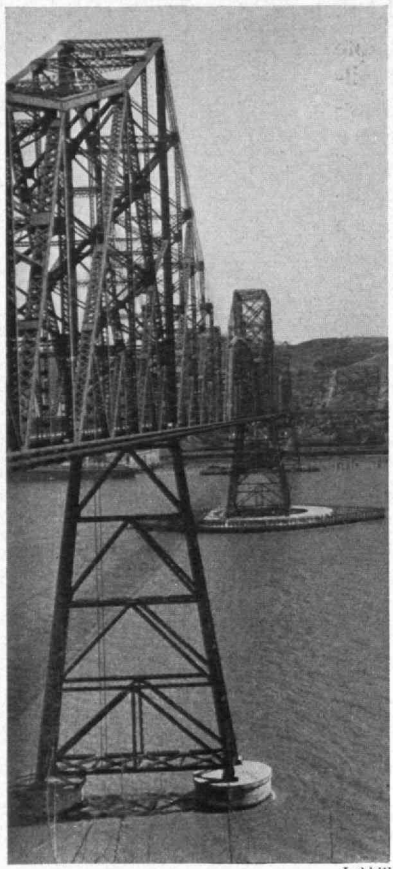
how, with future development along certain lines, the charges against the steam locomotive are likely to be reduced to the point where it can continue to compete with or excel its rivals.

One of the most promising ways of improving the efficiency of the steam locomotive is by raising the steam pressure; in Germany several locomotives have been built using extremely high pressures. One of these, the Loeffler Locomotive, used steam at 1470 lbs. and at a temperature of 860° F. and developed about 2500 horse power, showing a fuel saving of from 40% to 45% over locomotives carrying the usual pressures. Another and smaller German locomotive (The Wiesinger), developed about 1200 horse power, with a steam temperature of about 750° F., showed a fuel saving of about 30%. These performances show that such pressures can be safely carried and that they give substantial fuel savings.

Reference was made in these columns some time ago to several locomotives built by the Delaware & Hudson R. R. carrying pressures up to 500 lbs. ("Steam's Future On the Railroad" by H. E. Lobdell, '17, July, 1931). Tests of these locomotives have shown that important fuel savings have been obtained in all cases. Incidentally, all of these locomotives have had compound cylinders and it is possible that the savings may be in part due to this fact, as well as to the high pressure.

It seems certain that as pressures increase, the compound locomotive will again come into use. Also it seems likely that with the increase in pressures, the common type of radial stay and its modification, the Belpaire fire box, will in the locomotive of the future give place to some of the various designs of water-tube fire box, with which railroads and locomotive builders are at present experimenting.

Only one serious attempt has been made to improve the efficiency of the steam locomotive by conserving the heat energy discharged from the stack, and that resulted in the exhaust steam feed water heater. This device bypasses a part of the steam exhausted by the cylinders and utilizes it to heat the feed water to the very modest temperature of 200° or perhaps to 212° F., before forcing it into the boiler. Keeping in mind that for a boiler carrying 200 lbs. pressure, the temperature of the water and steam in the boiler is about 388° F. and that feed water, if preheated to this temperature before pumping into the boiler, would only require to have added to it by the boiler, the heat of vaporization, to turn it into steam at 200 lbs. pressure, the future possibilities for advancement and improvement in the art of heating feed water, are very striking. The flue gas, after passing all the boiler heating surface, and thus having given up all the heat that it will give up, leaves the stack at a temperature of from 500° to 700° F. The utilization of this waste heat to further raise the feed water to a temperature as near to boiler temperature as conditions will permit, looks very attractive from the standpoint of fuel saving and also in other ways. Furthermore the injection of hot feed water lessens boiler maintenance cost by eliminating contraction of boiler plates due to pumping in feed water cooler than the boiler. Another possibility for the salvaging of the heat in the exhaust flue gases is in the preheating of air for combustion. Instead of drawing in enormous quantities of cold air, under the grates and up through the fuel bed, if heated air could be drawn in, fire box temperatures would be increased and boiler efficiency improved.



Lobkill

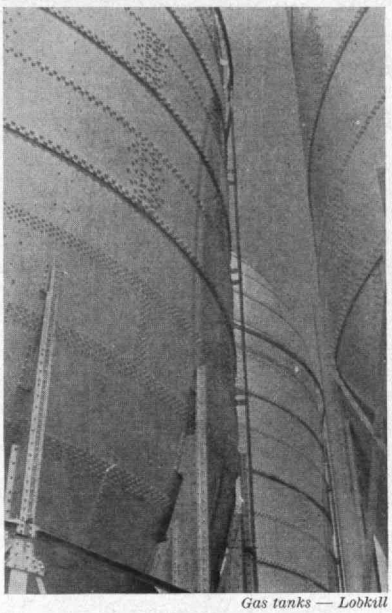
Above: *Strength in slenderness. The Carquinez Straits Bridge, Calif.* Below: *Greatest on wheels.* Left: *Largest trailer (32 tires in all!) to haul largest pipe (see adjacent text).* Right: *18-wheeled bus designed in Cleveland for service between Damascus and Bagdad, across the Syrian Desert. Insulated against desert heat and powered by three Diesels, it carries 35 passengers*

Heat losses due to radiation could be greatly reduced by more complete and better heat insulation. Many steam pipes on a locomotive are bare, fire box sheets below the cab are often unprotected by insulation and altogether the heat loss due to avoidable radiation is much larger than should be permitted.

Another place where great improvement could be made is in the front end. The front end is the draft producing part of the locomotive and is woefully inefficient. At the present time, only the kinetic energy of the jet of exhaust steam is utilized for producing draft, while all the heat

Goodyear Tire and Rubber Co.

Wide World



Gas tanks — Lobkull

energy of the exhaust passes unsalvaged out the stack. The kinetic energy of the jet is produced by a restricted opening through the exhaust nozzle. The direct result of this restriction is to put back pressure on the locomotive pistons and thus reduce the work output and hauling power of the engine. Many locomotives are operated with a back pressure of 15 to 20 lbs. and this pressure on every square inch of piston area amounts to a surprisingly large negative horse power. Motive power officials are alive to the failings of the front end and many attempts are being made to reduce its inefficiency; that is, to obtain a front end that will give greater draft per pound of back pressure. The exhaust jet is often broken up into several smaller jets, in order to entrain more of the flue gas and thus produce a higher vacuum, with no higher back pressure than with the conventional front end arrangement.

The ideal draft-producing apparatus is a turbine operated fan, placed in the smoke box. If the turbine were operated by live steam, the exhaust pipe from the cylinders could be large enough to eliminate all back pressure above atmospheric. If the fan turbine were operated by exhaust steam from the cylinders, there would have to be enough back pressure on the pistons to give the pressure required to operate the turbine. This back pressure, however, would be considerably less than with the present draft producing arrangements. To compensate for this back pressure, there would be no live steam required for producing the draft. In either event the fan turbine could be under control of a regulator, so adjusted that when the boiler pressure was at the point of raising the pop valve, the fan would slow down and give only draft enough to take the gas out of the cab. When the boiler pressure dropped, say 10 or 15 lbs. the fan would be speeded up and the draft on the fire increased until full pressure was restored once more. It should be noted that with a fan, the draft on the fire would be continuous and not intermittent as at present, this latter fact being particularly noticeable at starting and at slow speeds, and thus there would be a more favorable action on the fire than at present. With the draft produced by the exhaust jet, the draft is directly proportional to the number of exhausts per unit of time (that is, proportional to engine speed) regardless of the need, or lack of need, of producing more steam. The result of the production of steam when not needed is the opening of the locomotive pops and a direct loss therefrom. When the pop valves open, the time-honored way to cool the engine down is to open the fire door and allow a large amount of cold air to be drawn into the fire box, contracting tubes, and fire box sheets, starting boiler leaks and thus involving maintenance expense. The fan draft would eliminate all pop valve losses, maintenance expense due to cooling fire box sheets, etc.; would produce uniform and controlled draft and efficient combustion; would eliminate most of the objectionable noise of the exhaust; would eliminate most of the stack loss from sparks and solid fuel drawn from the fire by the present violent and intermittent draft, thus reducing fire hazard along the right of way and consequently reduce fire claims; and greatest of all, would increase the hauling power of the locomotive by the very considerable reduction of back pressure.

A possible change that may be looked for in the future will be the substitution of powdered coal for lump coal. A number of experimental powdered coal installations have already been made on American locomotives and in general have given excellent results. In Germany even more progress has been made in burning coal in suspension on locomotives than in this country, and may fairly be said to be beyond the experimental stage. The coal used for pulverizing is a very poor grade and cheap in price, but burns readily in powdered form. The combustion of powdered coal approximates that of a gas flame, with all the advantages of the latter. The draft requirements are only enough to draw the products of combustion out of the fire box and thus the back pressure on the pistons can be greatly reduced from present practice, consequently eliminating the very objectionable sound of the sharp exhaust. Boiler efficiency will be substantially increased, due to more complete combustion of the fuel. Smoke will be almost entirely eliminated, fires along the right of way and fire claims will be unknown, losses at the pop valve will be zero, maintenance costs due to continual opening of the fire door, as in hand firing, and drawing in large quantities of cold air will be eliminated, all stand by losses, both in the round house and on sidings, will be zero, because the powdered coal feed is stopped as soon as the demand for steam ceases. The latter statement is well illustrated by the experience of the mechanical engineer of one of our eastern railroads, who was riding on the locomotive of a freight train on a German railroad not long ago. The freight took a siding to allow a passenger train to pass and as soon as in the powdered coal feed was stopped. The mechanical engineer did not realize that this had been done and sometime after happened to open the door to look at the fire. Remembering American practice, where the fire must be kept alive during a stop on a siding, he was astonished to find that the fire was entirely out. When the freight was ready to proceed, the coal feed was started, there was a slight pop (about as when one lights a gas stove) and the fire was instantly going at full capacity. In this case the fire was reignited from the heat remaining in the brick arch. If the locomotive had been standing long enough to cool the arch below the ignition point, the fire would have been reignited by lighting a shred of waste or a bit of paper and throwing it into the fire box.

(*Concluded on page 334*)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Technology's Distinguished Graduate School

CONVINCING TESTIMONY as to the quality of graduate work offered at Technology is found in the recently completed survey of graduate schools conducted by a committee of the American Council of Education. In this survey, the first comprehensive study ever made of American graduate work, Technology was rated as distinguished in ten of the 11 fields in which it offers work for the doctorate. No other institution had such a high percentage of its work rated as distinguished, as the table on the next page shows. The only field, Zoölogy, in which the Institute was not listed as distinguished was judged as satisfactory. Zoölogy is only a part of Technology's work in Biology and Public Health, subjects which were not rated separately in the survey.

The study covered 35 fields of knowledge, a list of which was sent to the deans of all graduate schools known to be offering work for the doctorate. They in turn checked the fields in which their schools awarded the doctorate, indicated the number of degrees conferred in the past five years, and submitted a list of their graduate faculties in each field.

The list of institutions to be rated was compiled from the deans' reports and from a study of catalogues. The secretary of the national learned society in each field was then asked to submit a list of 100 eminent scholars. To these scientific juries were sent lists of the institutions offering work for the doctorate in their fields and the names of the graduate faculty of each. These scholars, numbering more than 2,000, checked the institutions which in their judgment had adequate staff and equipment to prepare candidates for the doctorate, and starred the departments of highest rank.

Of the 48 states in the Union, 20 have no institution which in the judgment of the juries is adequately staffed and equipped to offer work for the doctorate in any one of the 35 fields considered. Only five institutions (M.I.T., Princeton, Chicago, Harvard, Caltech) were judged as qualified or distinguished in every field in which they offered doctorates.

Below are the fields in which Technology was rated, and the other institutions listed as qualified in these fields. Asterisks indicate institutions rated as distinguished. Institutions are listed alphabetically.

AERONAUTICAL ENGINEERING — * California Institute of Technology, * Massachusetts Institute of Technology, Stanford.

CHEMICAL ENGINEERING — California Institute of Technology, * Columbia, Iowa State, * Massachusetts Institute of Technology, Ohio State, * Michigan, Minnesota, Wisconsin, Yale.

CHEMISTRY — Brown, * California Institute of Technology, * Columbia, * Cornell, Duke, * Harvard (Radcliffe), Indiana, Iowa State, * Johns Hopkins, * Massachusetts Institute of Technology, New York, Northwestern, * Ohio State, Pennsylvania State, * Princeton, Rice, * Stanford, * California, * Chicago, Cincinnati, Colorado, * Illinois, Iowa, Kansas, * Michigan, * Minnesota, Missouri, Nebraska, North Carolina, Notre Dame, Pennsylvania, Pittsburgh, Virginia, Washington, * Wisconsin, Western Reserve, * Yale.

CIVIL ENGINEERING — California Institute of Technology, Columbia, * Cornell, Harvard, Iowa State, Johns Hopkins, * Massachusetts Institute of Technology, Purdue, Rensselaer Polytechnic Institute, California, * Illinois, Iowa, Minnesota, Pennsylvania, Wisconsin.

ELECTRICAL ENGINEERING — * California Institute of Technology, Columbia, Cornell, Harvard, * Johns Hopkins, * Massachusetts Institute of Technology, Purdue, Stanford, California, Michigan, Pennsylvania, Wisconsin, Yale.

GEOLOGY — * California Institute of Technology, * Columbia, Cornell, * Harvard (Radcliffe), Indiana, Johns Hopkins, * Massachusetts Institute of Technology, * Princeton, * Stanford, * California, * Chicago, Cincinnati, Illinois,

NUMBER OF INSTITUTIONS QUALIFIED AND DISTINGUISHED FOR GRADUATE WORK IN 35 FIELDS OF KNOWLEDGE

Field	*Schools Qualified*	*"Distinguished"*
Aeronautical engineering	3	2*
Anthropology	7	5
Animal nutrition	8	3
Astronomy	9	5
Bacteriology	17	9
Botany	30	8
Chemical engineering	9	3*
Chemistry	37	16*
Civil engineering	15	3*
Classics	23	9
Economics	22	11
Education	30	10
Electrical engineering	13	3*
English	27	8
Entomology	14	5
Fine arts	6	3
Genetics	17	6
Geography	9	4
Geology	21	12*
German	22	7
History	26	8
Human nutrition	14	5
Mathematics	26	7*
Mechanical engineering	11	3*
Mining and metallurgical engineering	14	3*
Philosophy	24	7
Physics	25	12*
Plant pathology	19	4
Plant physiology	21	6
Political science	24	8
Psychology	31	11
Romance languages	22	7
Sociology	24	5
Soil science	10	4
Zoölogy	31*	11

* Includes M.I.T.

INSTITUTIONS WITH GRADUATE WORK RATED AS DISTINGUISHED

** Listed in Order of the Percentage of Fields Rated as Distinguished (center column)*

Institution	Fields of Study Offered and Rated	No. of Fields Rated as Distinguished	Per Cent of Fields Rated as Distinguished	Fields Rated as Satisfactory	Per Cent of Fields Rated as Distinguished or Satisfactory
M.I.T.	11	10	**91**	1	100
Princeton	17	14	**82**	3	100
Chicago	26	21	**81**	5	100
Harvard (Radcliffe)	29	23	**79**	6	100
Columbia	29	21	**72**	7	97
U. of California	33	21	**64**	10	94
Calif. Inst. of Tech.	10	6	**60**	4	100
Cornell	29	16	**55**	11	93
Yale	29	16	**55**	10	90
Wisconsin	32	17	**53**	14	97
Michigan	30	14	**47**	14	93
Johns Hopkins	26	12	**46**	12	92
Minnesota	29	8	**28**	17	86
Pennsylvania	25	5	**20**	16	84
Rochester	5	1	**20**	0	20
Iowa State College	16	3	**19**	10	81
Stanford	26	4	**15**	19	88
Illinois	29	4	**14**	23	93
Ohio State	31	4	**13**	18	71
Clark	9	1	**11**	2	22
Brown	12	1	**8**	8	75
Purdue	12	1	**8**	3	25
University of Iowa	25	2	**8**	16	72
Rutgers	15	1	**7**	3	20
Bryn Mawr	17	1	**6**	10	65
Northwestern	17	1	**6**	14	88
North Carolina	20	1	**5**	10	55
Texas	22	1	**5**	9	46
Washington U. (St. Louis)	22	1	**5**	10	50

* Table compiled by Review Staff from College catalogues and from data derived from American Council of Education Survey.

Iowa, Kansas, Michigan, * Minnesota, Missouri, Oklahoma, * Wisconsin, * Yale.

MATHEMATICS — * Brown, Bryn Mawr, California Institute of Technology, * Columbia, Cornell, Duke, * Harvard (Radcliffe), Indiana, Johns Hopkins, * Massachusetts Institute of Technology, Ohio State, * Princeton, Rice Institute, Stanford, California, * Chicago, Cincinnati, *Illinois, Iowa, Michigan, Minnesota, Missouri, Pennsylvania, Texas, Wisconsin, Yale.

MECHANICAL ENGINEERING — California Institute of Technology, * Cornell, Harvard, Johns Hopkins, * Massachusetts Institute of Technology, * Purdue, Stanford, California, Illinois, Michigan, Yale.

MINING AND METALLURGICAL ENGINEERING — Carnegie Institute of Technology, Colorado School of Mines, * Columbia, * Harvard, * Massachusetts Institute of Technology, Pennsylvania State, Stanford, Arizona, California, Michigan, Missouri, Pittsburgh, Wisconsin, Yale.

PHYSICS — Brown, * California Institute of Technology, * Columbia, * Cornell, * Harvard (Radcliffe), * Johns Hopkins, * Massachusetts Institute of Technology, New York, Northwestern, Ohio State, * Princeton, Rice Institute, Stanford, * California, * Chicago, Illinois, Iowa, * Michigan, Minnesota, Pennsylvania, Pittsburgh, Virginia, * Wisconsin, Washington University, * Yale.

ZOÖLOGY — Brown, Bryn Mawr, * California Institute of Technology, * Columbia, Cornell, Duke, * Harvard (Radcliffe), Indiana, Iowa State, * Johns Hopkins, Massachusetts Institute of Technology, New York, Northwestern, Ohio State, * Princeton, Stanford, * California, * Chicago, Illinois, Iowa, * Michigan, Minnesota, Missouri, North Carolina, Oklahoma, * Pennsylvania, Pittsburgh, Texas, * Wisconsin, Washington University, * Yale.

Faculty Appointments

APPOINTMENTS of Dr. Francis Bitter, research physicist of the Westinghouse Electric and Manufacturing Company, Dr. Joseph H. Keenan, '22, of Stevens Institute of Technology, and Dr. Robley D. Evans of the University of California, to the Faculty of the Institute have been announced by President Compton. They will come to Technology at the opening of the college year next September. Also Dr. Edwin R. Gilliland, '33, becomes instructor in the Department of Chemical Engineering.

Dr. Bitter joins the Faculty as Associate Professor in the Department of Mining and Metallurgy. Dr. Keenan becomes Associate Professor of Mechanical Engineering, while Dr. Evans will be an Assistant Professor in the Department of Physics.

Dr. Bitter is noted for his application of the ideas of modern physics and atomic structure to the understanding of the mechanical and magnetic properties of metals, and to the solution of practical problems in these fields. At Technology he will be associated with an active group dealing with the theoretical and practical aspects of physical metallurgy.

In view of the interest of physicists, electrical and mechanical engineers in the properties of metals, Dr. Compton stated, Dr. Bitter with contacts in all of these fields will strengthen significantly the Institute's work on the problems of metals and alloys.

After receiving his doctorate from Columbia University, Dr. Bitter spent two years as a National Research Fellow in physics at Princeton University and at the California Institute of Technology. During this period he specialized in theories of magnetism. He then joined the staff of the research department of the Westinghouse Electric and Manufacturing Company. During the past year he has carried on research as a Guggenheim Fellow at Cambridge University in England.

Dr. Bitter is the son of the distinguished American artist, the late Carl Bitter. His wife also is well known in musical circles as Ratan Devi, and is noted particularly for her interpretation of the music and spirit of India.

Dr. Keenan was born in Wilkes-Barre, Pa., and was graduated from Technology with the degree of bachelor of science in naval architecture and marine engineering in 1922. While a student at the Institute he rowed on the varsity crew and was a member of the gymnasium team.

Following his graduation, he joined the staff of the General Electric Company, where for five years he carried on research and experimental development in large steam turbine design. In 1928 he accepted his present post as Assistant Professor and Chairman of the Department of Mechanical Engineering at Stevens Institute of Technology. Since 1929 he has also served as research engineer for Jabez Burns and Sons, Inc. He is the author

of many distinguished papers on various aspects of power and thermodynamics.

Dr. Keenan is one of a group of scientists of which Dr. Frederick G. Keyes, Head of the Institute's Department of Chemistry, is a distinguished member, whose work since 1921 has resulted in new conceptions of the utilization of steam. This research, in which scientists from Technology, Harvard, and the United States Bureau of Standards have participated, has had as its goal the precise measurement of the physical properties of steam to extremes of temperature and pressure. As a result the cost of steam power production has been greatly reduced.

Dr. Keenan was a delegate to both the first and second International Steam Tables Conferences held in London and Berlin in 1929 and 1930. In the latter year he was also advisory delegate to the prime movers committee at the Scandinavian meeting of the International Electrotechnical Commission. He is an associate member of the American Society of Mechanical Engineers, and a member of that organization's special research committee on thermal properties of steam.

Dr. Evans is a native of Nebraska, and was graduated from the California Institute of Technology in the class of 1928. The same institution awarded him the degree of Master of Science in 1929, and in 1932, that of Doctor of Philosophy. As an undergraduate he received an Institute scholarship, and from 1925 to 1927 won the Blacker scholarships. In the latter year he was also the recipient of the European Travel prize.

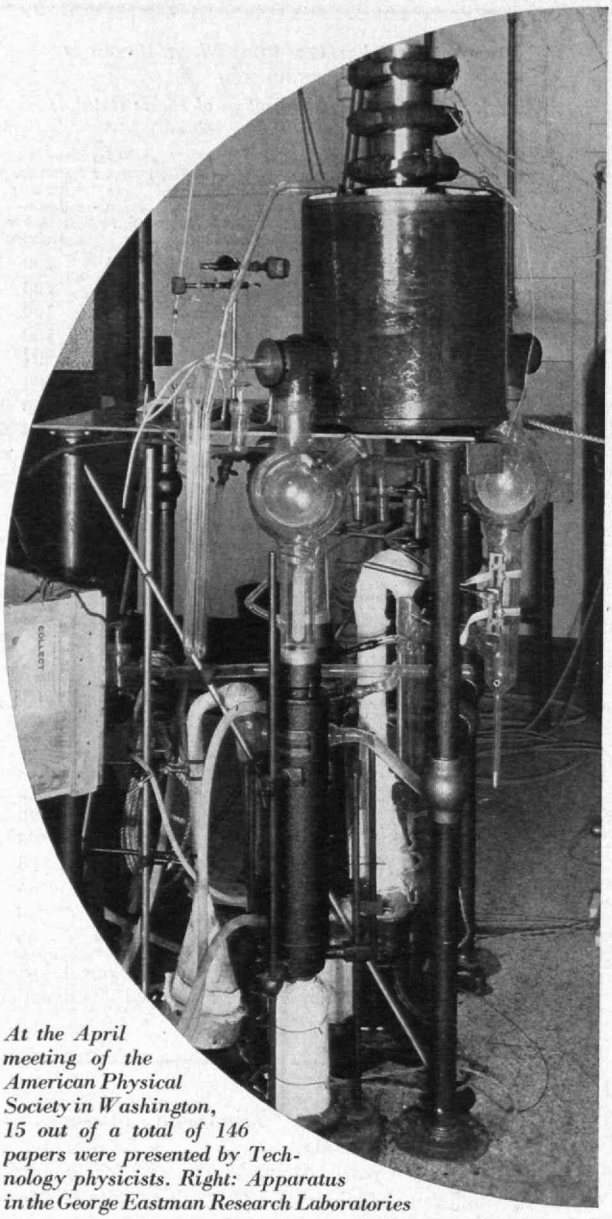
Dr. Evans was Director of the research laboratory of C. F. Braun and Company, Ltd., Alhambra, Calif., from 1929 to 1931, and the following year served as a master at the Polytechnic School in Pasadena. He was made a National Research Fellow in 1932, and for the past two years has specialized in the study of geological strata at the University of California.

Dr. Gilliland, whose home is in Little Rock, Ark., was graduated from the University of Illinois in the class of 1930, and was awarded the degree of master of science by Pennsylvania State College the following year. He received his doctorate at the Institute in 1933, and this year has been a Research Fellow in Chemical Engineering.

Social Sciences for Engineers

RECOGNITION of the increasingly important rôle of engineers in the solution of social and governmental problems is seen in the change of name of the Department of Economics and Statistics to that of the Department of Economics and Social Sciences.

While the work of the Department already touches the social sciences at many points, as indicated in such subjects as Industrial Relations, Evolution of Industry, and Government Control of Industry, the change in name foreshadows a further broadening in the scope of its interests and activities. The inclusion of such branches of study as Sociology and Government, if and when added, is intended to add a valuable element to the Institute's educational scheme.



At the April meeting of the American Physical Society in Washington, 15 out of a total of 146 papers were presented by Technology physicists. Right: Apparatus in the George Eastman Research Laboratories

Governmental exercise of many new economic functions is making it increasingly necessary for engineers to understand the structure of government and the basic ideas underlying the country's political institutions. It is also generally accepted that the engineering profession should be aware of the social consequences of technical progress.

Record Dean's List

THE LARGEST Dean's List of Students of High Scholastic Standing in the history of the Institute was made public on March 30, when the names of 723 students, or 35.3% of the entire undergraduate body, went on record as having maintained first, second, or third honor rank in their studies. Many of them are prominent student leaders in athletics, undergraduate publications, and in the work of musical, social, and professional organizations on the campus. The percentage of undergraduates recorded on the Dean's List for the second semester of last year was 34%.

Professor Frederick H. Norton, '18, making test specimens of pottery in the Ceramics Laboratory of the Institute's Department of Mining and Metallurgy

World Appraisal

TECHNOLOGY'S prestige abroad is strikingly evidenced in a recent survey made by the Committee on Friendly Relations Among Foreign Students, showing the distribution of students from other nations now enrolled in American colleges.

Of the 62 institutions studied, the Institute ranks second highest in its percentage of foreign enrollment. In total numbers it also stands high, having 101 to Yale's 99, Harvard's 93, California Institute of Technology's 40, and Princeton's 34. Columbia with 502 tops the list.

Groupings of the colleges on the basis of percentage of foreign to total enrollment follow:

Per cent of Foreign to Total Enrollment	*No. of Institutions*
0.1 — 0.49	21
0.5 — 0.99	15
1.0 — 1.49	10
1.5 — 1.99	7
2.0 — 2.49	4
2.5 — 2.99	3
3.0 — 3.49	1 (M. I. T.)
5.5	1

Society of the Sigma Xi

WITH traditional ceremony, the Technology Chapter of the Society of the Sigma Xi, national honorary scientific fraternity, was formally installed at a meeting in Eastman lecture hall on April 5. Professor Dugald C. Jackson, Head of the Electrical Engineering Department, was elected President of the new chapter; Professor Hervey W. Shimer, Acting Head of the Department of Geology, Vice-President; and Professor George Scatchard of the Department of Chemistry, Secretary and Treasurer.

President Compton, Vice-President Vannevar Bush, '16, Dean Samuel C. Prescott, '94, and Dean Harry M. Goodwin, '90, were initiated as members of the society. The new unit is otherwise composed of faculty members who joined Sigma Xi chapters while at other institutions.

Professor George H. Parker of Harvard University, President of the National Society, installed the Technology Chapter, and Dean Edward Ellery of Union College, National Secretary, presented the charter. The ceremony was followed by a dinner in the Moore Room, at which President Compton served as toastmaster. The greetings of representatives of neighboring chapters were acknowledged by President Jackson, followed by an address by Dean Bush.

Among the official delegates from other Sigma Xi chapters who attended the installation were Dr. R. B. Lindsay, representing Brown University; Professor Russell Gibson, Harvard; Dr. Theodore H. Morgan, Worcester Polytechnic Institute; Dr. Barnett F. Dodge, '17, Yale; Dr. John L. Oncley, University of Wisconsin; Dr. George E. Kimball, Princeton; Dr. F. L. Whipple, University of California; and Dr. W. J. Scott, Swarthmore College.

The Society of Sigma Xi, with 63 chapters in educational institutions throughout the country, has as its object the encouragement of original investigation in pure and applied science. Its activities include meetings for discussion of scientific subjects; the establishment of fraternal relations among investigators; the granting of membership to promising students; publication of scientific matters, and the support of research fellowships.

President Jackson was a member of the original chapter of Sigma Xi, which was founded at Cornell University in 1886. He was also a charter member of the Wisconsin chapter, installed while he was a member of that institution's faculty. Since coming to the Institute he has been active in creating interest in a Technology chapter. Dean Prescott also has been especially instrumental in securing the new unit, as have Professor Keyes of the Chemistry Department and Professor Edward L. Bowles, '22, of the Department of Electrical Engineering, Chairman and Secretary respectively of the Technology Committee on Sigma Xi.

The charter members of the new chapter include: Dr. Isadore Amdur, Dr. Clarence E. Bennett, Professor

Ralph D. Bennett, Professor Edward L. Bowles, '22, Professor Edward E. Bugbee, '00, Professor John W. M. Bunker, Dr. George H. Cady, Dr. Paul L. Copeland, Dr. Gerhard Dietrichson, Professor Louis J. Gillespie, Professor Arthur C. Hardy, '18, Professor George R. Harrison, Professor Edward C. Harwood, Dr. John F. G. Hicks, Jr., George B. Hoadley, '32, Professor Dugald C. Jackson, Professor Frederick G. Keyes, Dr. David B. Langmuir, '33, Dr. David L. MacAdam, '33, Dr. Nicholas A. Milas, Professor Earl B. Millard, Professor Frederick K. Morris, Professor Philip M. Morse, Carl Neitzert, '32, Professor Wayne B. Nottingham, Dr. John L. Oncley, Professor Henry B. Phillips, Professor Charles H. Porter, '02, Robert D. Richtmyer, '33, Dr. Edwin L. Rose, '21, Professor Erik G. Rudberg, Professor George Rutledge, Professor George Scatchard, Dr. Ralph P. Seward, Professor Thomas K. Sherwood, '24, Professor Hervey W. Shimer, William Shockley, '33, Professor Louis B. Slichter, Dr. William D. Urry, Professor Walter C. Voss, '32, Professor George B. Waterhouse, and Dr. Ralph C. Young, '28. Associate members include Harry C. Kelley and John Freehafer.

Dr. Underwood

DR. HENRY W. UNDERWOOD, JR., Assistant Professor of organic chemistry, who died at his home in Cambridge on March 20, had been a member of the Technology staff since 1920.

He was born in Wakefield, R. I., on August 14, 1895, and attended Brown University, where he was awarded the degrees of bachelor of philosophy in 1916, master of science in 1917, and in 1919, doctor of philosophy. He then remained one year longer at Brown as a Research Fellow. In 1920 he joined the Institute staff as instructor of organic chemistry, a position which he held until his appointment as Assistant Professor in 1929.

Professor Underwood was the author of two textbooks, "Problems in Organic Chemistry," and "Experiments in Organic Chemistry." He was a member of the American, French, German, and Dutch Chemical Societies, and of the History of Science Society. In 1930 he was commissioned Captain in the Specialist Reserve, United States Army, and last year was elected a Fellow of the American Academy of Arts and Sciences. His chemical researches included studies of catalysis and the effect of catalysts upon the mechanism of reactions; studies in the diphenic acid series, and on the phthaleins tending to throw light upon the relations between color and chemical constitutions.

Gift to Library

A GIFT of 300 books from the collection of the late Edward Atkinson has been presented by members of his family to the library of the Department of Economics and Social Sciences. The collection includes works in the general field of economics, economic theory, history, labor problems, and statistics.

Mr. Atkinson, who died in 1905, was a member of the Corporation of the Institute from 1865 to 1890, during which time he served on numerous committees and did much to secure funds and property for the school. An active member of the New England Cotton Manufacturers Association, he was recognized as an authority in methods of cotton growing and manufacture. He acquired a wide reputation as a statistician and economist, and wrote extensively on subjects of current interest throughout his life.

Presentation of the volumes was made by Edward W. Atkinson, '84, William P. Atkinson, '88, Robert W. Atkinson, Caroline P. Atkinson, and Mrs. R. G. Wadsworth, surviving children of Mr. Atkinson, and the heirs of the estate of Mrs. Ernest Winsor, '82: Mrs. John B. Swift, Edward A. Winsor, and Mrs. Graham P. Winslow.

Blocks and Chips

THE FIRST Technology Father and Son banquet, held in Walker Memorial on April 28 under the auspices of the Commuters 5:15 Club, gave dozens of paternal parents an opportunity to meet one another and to glimpse some of the less formal aspects of the undergraduate career.

Early arrivals witnessed an exhibition by the gymnasium and boxing teams in Walker Gymnasium. Between courses of the dinner, the guests were entertained by a quartet, and by group singing conducted by Mr. William Weston, coach of the Combined Musical Clubs.

Professor Robert E. Rogers of the English Department was chief speaker of the evening, and Vice-President Bush interpreted the new motion picture, "Technology," a graphic portrayal of student life at the Institute.

M. I. T. as a Research Center

ON JANUARY 1, 1934, a group of 84 outstanding young scientists of the country held fellowships in physics, chemistry, and mathematics from the National Research Council. Here, according to a recent bulletin of the Council, are the institutions at which these Fellows elected to carry on their advanced studies:

M. I. T., 14; Princeton, 13; Harvard, 10; Caltech, 10; California, 4; Johns Hopkins, 3; Columbia, 3; N. Y. U., 3; Wisconsin, 2; Chicago, 2; Rice, 2; Yale, 2; miscellaneous, 16.

Reëlected

AT ITS MEETING on April 7, the Governing Board of the American Institute of Physics reëlected President Compton its Chairman, an office to which he has been reëlected annually since the organization of the Institute in 1931.

The American Institute of Physics was organized for coöperation in the interests of physics. It is composed of the American Physical Society, the Optical Society of America, the Acoustical Society of America, the Society of Rheology, and the American Association of Physics Teachers.

Dr. Compton has also been appointed, along with James H. Doolittle, '24 and Edgar S. Gorrell, '17, to the committee of 11 civilian and military experts chosen by Secretary of War Dern to make a constructive study of the Army Air Corps.

Eleventh Open House

NEW AND STRIKING exhibits of scientific and engineering progress will mark Technology's eleventh annual Open House on May 5. As in the past, the program has been arranged by the Student Combined Professional Societies, who have planned demonstrations of unusual interest for the thousands of expected visitors.

In Walker Memorial, members of the staffs of the four undergraduate publications, *The Tech*, *Technique*, *Tech Engineering News*, and *Voodoo*, will hold open house. A concert will be presented by the Combined Musical Clubs, and a tea dance will be held in the afternoon.

All laboratories, including the new George Eastman and spectroscopy buildings, will be open for inspection from two until ten o'clock. Among the departmental exhibits will be high speed motion pictures, a miniature railroad system, liquid air demonstrations, and the giant wind tunnels.

Faculty Promotions

THE PROMOTION of 30 members of the Institute faculty was announced by President Compton last month. Professor Charles B. Breed, '97, becomes Head of the Department of Civil and Sanitary Engineering, and Professor Ralph E. Freeman, Head of the Department of Economics and Social Sciences. Professor Henry B. Phillips was named Acting Head of the Mathematics Department.

Promoted to full Professorship are Arthur C. Hardy, '18, Physics; George Rutledge, Mathematics; and Walter C. Schumb, Chemistry.

Promotions to Associate Professor include Jesse Douglas and Raymond D. Douglass, '24, Mathematics; Robert F. Elder and Wyman P. Fiske, Business and Engineering Administration; Richard D. Fay, '17, Electrical Engineering; Philip M. Morse and Bertram E. Warren, '24, Physics; Avery A. Morton, '24, Chemistry; Edward R. Schwarz, '23, Mechanical Engineering; and Thomas K. Sherwood, '24, Chemical Engineering.

The following become Assistant Professor: William P. Allis, '23 and John C. G. Wulff, Physics; Avery A. Ashdown, Gerhard Dietrichson, Stephen G. Simpson, '16, and Ralph C. Young, '28, Chemistry; Herbert L. Beckwith, '26, Architecture; Charles H. Blake, '25, Biology and Public Health; Carl Bridenbaugh and Frederick G. Fassett, Jr., English and History; Charles H. R. Mabie, Drawing; Samuel H. Caldwell, '25, Electrical Engineering; John D. Mitsch, '20 and John B. Wilbur, '26, Civil and Sanitary Engineering.

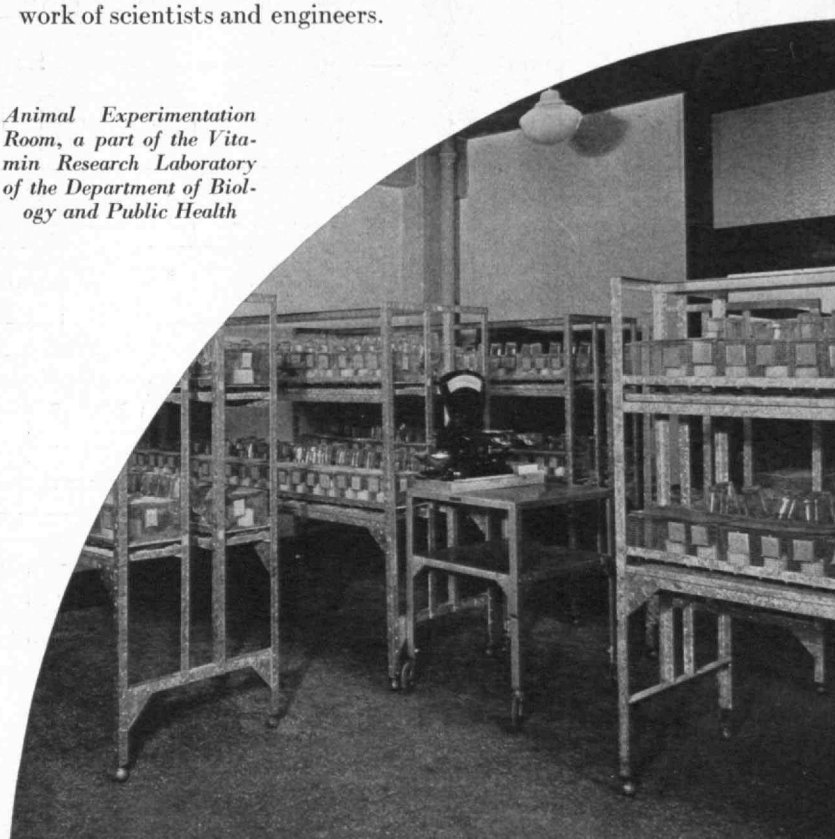
Alumni Council Meeting

EIGHTY members and guests assembled for the 172nd meeting of the Alumni Council in Walker Memorial, March 26. Following the usual dinner, the Council chose a special nominating committee whose duty is to select candidates from the alumni for presentation to the Alumni Council, to be elected by the Council as candidates for departmental visiting committees, appointed by the Corporation. The names of the candidates follow: Redfield Proctor, '02, and Raymond S. Stevens, '17, for a term of one year to expire June 30, 1935; Edward L. Moreland, '07, and Harold E. Lobdell, '17, for a two-year period to expire June 30, 1936; and S. C. Prescott, '94, and Carroll L. Wilson, '32, for a period of three years to expire June 30, 1937. It was voted that the Secretary cast one ballot for the nominees presented.

The Secretary reported that the Technology movie is meeting with much demand; that recent visits to local clubs had included Dr. J. L. Tryon to Hartford on March 12 and Dean William Emerson to Columbus, March 19, Cincinnati, March 20, St. Louis, March 21, Kansas City, March 22, Minneapolis, March 23 (combined meeting with the University), Chicago, March 24, and Cleveland, March 26; that the April meeting would be devoted to a symposium on research of all kinds that is going on in Technology with plenty of opportunity for questions and discussion by Council members; that a gracious acknowledgment had been received from Mrs. Morss of the resolutions on her late husband (this was read by the Secretary).

Mr. Raymond S. Stevens, '17, Chairman of the Assemblies Committee, presented a brief report on the Alumni Dinner, which dealt with the marked success of the dinner, and particularly the financial result, whereby the deficit on the dinner this year was $459.00 as compared with $496.00 last year and $687.00 two years ago. He further remarked that since the trend seemed definitely to show that a reduced price for the Alumni Dinner resulted in a lower deficit to be borne by the Alumni Association, the logical thing would be to charge nothing for the dinner!

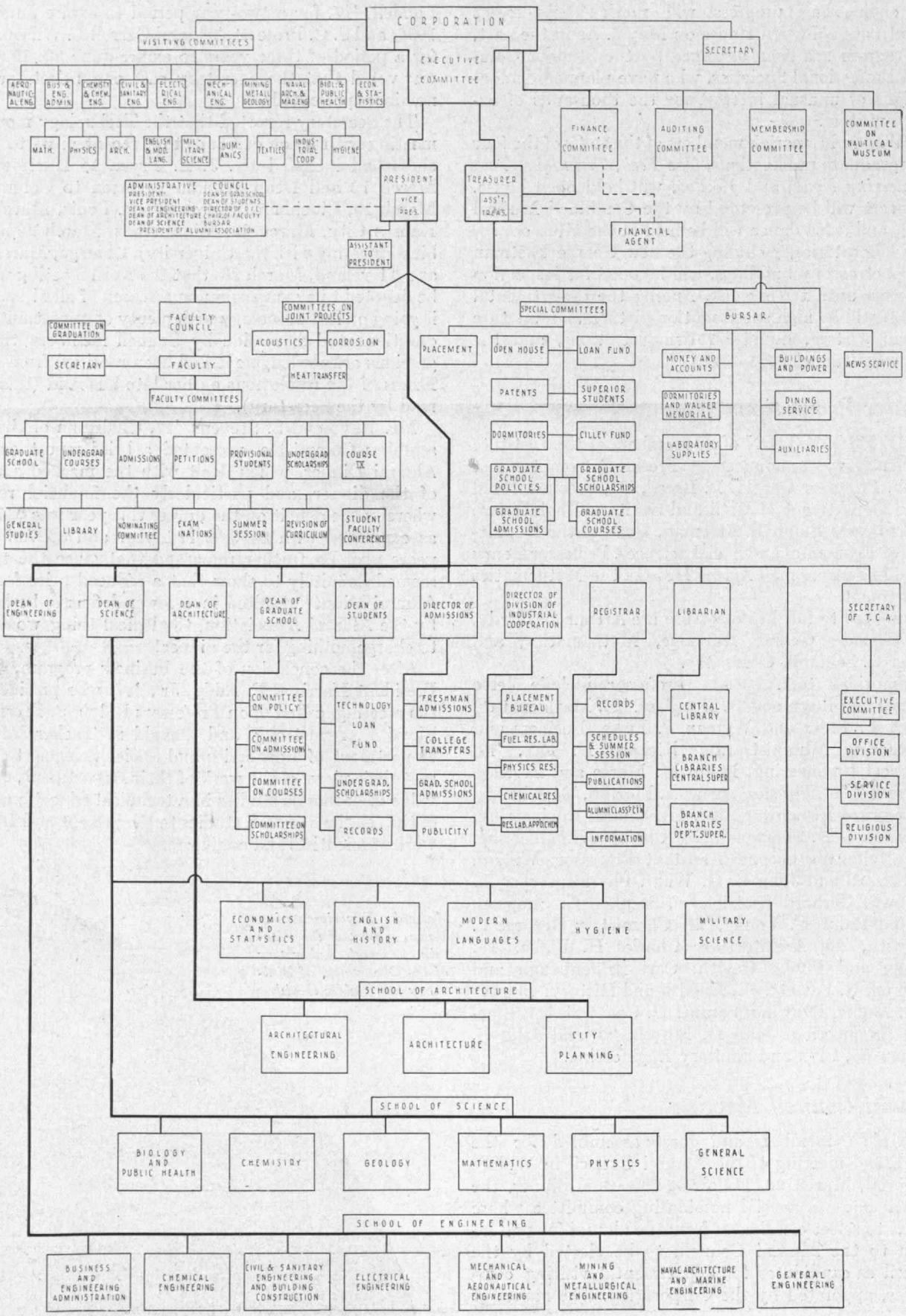
After the conclusion of the business program, Vice-President Harrison P. Eddy, Jr., '17, who presided at the meeting, called upon Professors Ralph E. Freeman, Floyd E. Armstrong, and Donald S. Tucker, of the Department of Economics and Social Science, to present their views of the work of their Department, of the value of economic studies in a technical education, and of the relations of such studies to the present and future work of scientists and engineers.



Animal Experimentation Room, a part of the Vitamin Research Laboratory of the Department of Biology and Public Health

Technology's Administrative Structure

A Study of Educational Organization as Exemplified by M.I.T.



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HOUSING AND RECOVERY

(*Continued from page 299*)

British experts at £400,000,000, equal to about $2,000,000,000.

Whereas certain direct grants toward capital cost, notably by certain European municipalities, have seemed to accrue to the ultimate good of the community through raising social standards, such government aid — certainly in capitalistic countries — is considered by most economists to be unsound and undesirable. It tends to undermine the economic structure of the State, upon which sound social development depends. This is particularly true if such grants are conditional upon the observance of unsound or uneconomic practices. In the United States until recent months, government assistance to housing has been confined to ten or a dozen of our 48 states and even that, with the exception of New York, has been negligible in extent. In New York City beginning in 1920, over $900,000,000 of new housing was erected with a ten-year exemption from taxation on its cost. The economic result to the city and state is considered bad by most critics, the houses having been poorly built, involving fire and slum hazards, with little benefit to the poorer classes.

Within the past year the Federal Government has included in its economic recovery program tenders of financial aid toward the "construction, reconstruction, alteration, or repair under public regulation or control of low-cost housing and slum-clearance projects." *

* National Recovery Act, 73rd Congress, H. R. 5755.

This is in addition to very desirable emergency mortgage-loan legislation for safeguarding the ownership of distressed farms and homes. It is also in addition to the minor project of "subsistence homesteads," "to provide for aiding the redistribution of the overbalance of population in industrial centers." * Such aid may be either in the form of self-liquidating loans, or grants up to "30 per centum of the cost of the labor and materials employed." Only states, municipalities, or other public bodies are eligible to receive grants.

In order that projects may receive such aid, conditions are imposed regarding materials and methods of construction and employment which tend rather to increase than reduce resulting costs. As against the normal week of 40 hours or more in force at the time of the passage of the Act, and the 40 hours weekly specified subsequently in the NRA code of fair competition in the construction industry, as approved on January 31, 1934, a maximum of 30 hours in any one week is specified. The requirement implies that wages for the 30-hour week should equal those for the current 40-hour week; but thus far the current *hourly* rates have been observed. The law further provides that "the maximum of human labor shall be used in lieu of machinery wherever practicable and consistent with sound economy and public advantage."

Chinese doctors, according to old travelers' tales, used to stick pins into every part of a patient's anatomy in order to find and expel the demon who was causing the disease. In our Recovery legislation there is a conflict between avowed purposes (*Continued on page 322*)

HOUSING AND RECOVERY

(*Continued from page 320*)

and the means by which those purposes are to be fulfilled, — between diagnosis and cure. The legislation aims to increase employment and purchasing power and to provide low-cost housing; but its provisions add to housing costs and real economic rents, and its grants, bonding, and employment conditions lessen, rather than increase, general buying power. It tends to perpetuate wastage inherent in present building methods already too large.

WHEN financial aid is extended by government to housing for private use there is an obligation toward the recipient community that must inevitably pay the bill which rests upon the immediate beneficiaries — an obligation to give something in return. If the beneficiary is a contractor, he should accept a less-than-normal margin of profit; if a laborer, he should work for a lower hourly wage than on a purely private project; if owner, he should be obligated to the full going rate of taxation based on normally assessed values while limiting net income from rental to 5% or 6% on the lower government-aided cost; and if a tenant, he should pay an economic rent on the really lower-cost housing resulting from the aid.

In the case of government loans toward the cost of construction this obligation toward the community is often covered by a limited-dividend or rental provision. If such limited-rental condition is accompanied by tax-exemption provisions, the obligation is nullified and perhaps a net burden placed upon the community instead of an economic benefit. In the case of government grants there has usually been attached no condition of economic obligation. The direct beneficiaries have received economic assistance imposing a tax on the rest of the community. Their obligations to the community have not been recognized or fulfilled. In so far as this economic obligation has been recognized in government aid in the form of loans, it seems to account for the general soundness of the results attained. The lack of obligation applying as a condition for the receipt of public grants seems clearly to account for the usual if not general failure to benefit the economic condition of the communities involved.

Looking back upon the foregoing analysis, what is beneficial in government intervention and what is injurious seem quite clear. In regulatory measures first and foremost sound planning will not only control social and economic growth along right lines but prevent much of the worst ills in the form of slums and blighted areas; and scientific unified laws regulating construction and sanitary and hygienic conditions prevent economic waste and conserve the public health and welfare as against politically controlled and unresponsive regulation. In measures involving financial aid government intervention to develop and conserve the credit of housing assets has proved beneficial in almost every case. In extension of government credit in the form of loans on cost of construction where the obligation of the beneficiaries toward the community has been met, the measures have proved beneficial (*Continued on page 324*)

HOUSING AND RECOVERY

(*Continued from page 322*)

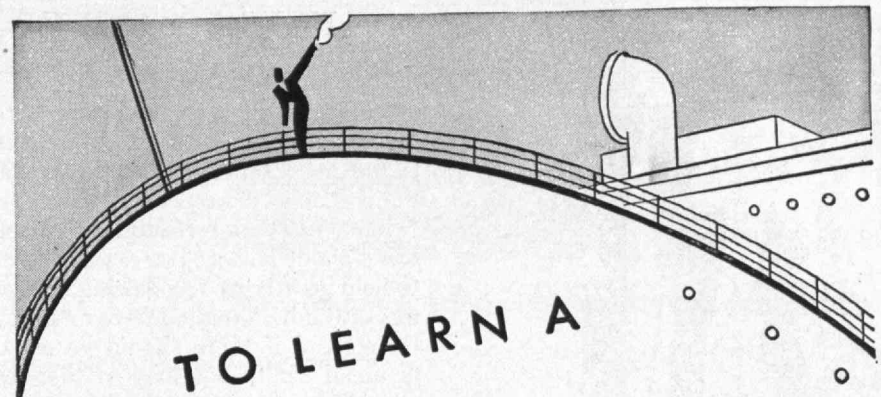
both to the social and the economic structure. Grants toward the capital cost of housing have generally proved injurious to the economic structure because of the usual failure to impose conditions upon the beneficiaries commensurate with the added burden upon the community as a whole incident to resulting increased taxation.

There is nothing magical or really alluring about government funds; they do not come out of thin air at the waving of the political magician's wand. They are just as much a charge upon the community in which the funds are spent, and from which in a rather vague way they must be recouped, as though provided from private capital. The only difference is that repayment to government may be in larger amount than to private capital because of the obvious extra cost of the extra administration of the government aid involved.

The chief immediate beneficiaries would be the large numbers of unemployed laborers and contractors included in the building industry. Government aid is offered to get these men back to work and simultaneously to increase buying power. The waste of materials and labor in building construction, as previously noted, may easily amount to 30% of the total which government is offering as a grant toward the cost of approved projects. If this estimate of waste is correct, government should extend aid to reduce waste and not perpetuate or even perhaps to increase it. A part of the waste is due to the lack of labor-saving devices. This is not labor's fault, nor yet again the contractor's, but labor is getting the serious effect of that lack in the present great unemployment as compared with other industries. There is a real need for more housing and for lower costs, more employment and more buying power. If building contractors would halve their usual profit to 5%; and if building labor would accept hourly wages on government jobs approximating those obtaining in the lower wage industries, or even approaching the minimum of 40¢ an hour (for unskilled labor, it is true) in its own construction industry's code; and if the number of hours per week on government-aided projects were 40 (or possibly even 48, the maximum allowed temporarily under the construction industry's code); the following results helpful to general recovery might be expected and government aid would definitely have justified itself:

The cost of building, particularly housing, would be less.
The demand for buildings, and particularly housing, would be more.
Unemployment in the building trades would be less, probably much less.
Total earnings of building labor would be more, probably much more.
Real economic rents for "low-cost housing" would be less.
The power of all to buy housing would be increased; and indirectly general purchasing power would be increased.
Trade and employment in contributory industries and occupations would be increased.
The community would be getting something tangible for its added burden of taxation.

But in so far as financial aid in any form may be a governmental function, it is better exercised by the individual state in which the (*Concluded on page 326*)



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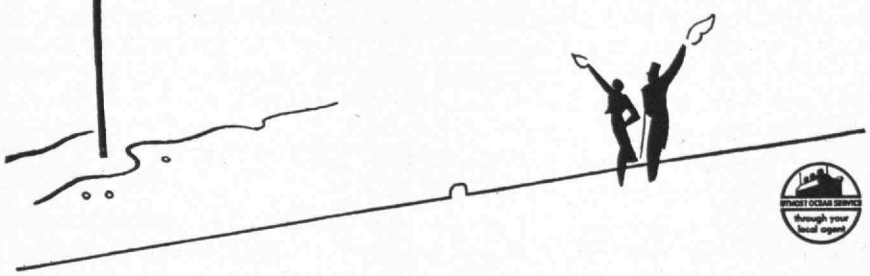

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HOUSING AND RECOVERY

(*Concluded from page 324*)

object of the aid is located. Where grants are concerned, their unequal distribution among the states in relation to the distribution of the resulting taxation from which the cost must be recouped is a direct injustice as well.

Far more than mere legislative action is necessary to bring about real recovery, yet legislation has the power to help greatly by recognizing the comparative disabilities of the building industry and taking steps to rectify them. And if there should be reason for government financial aid to housing — either federal or state — it should be offered on the one condition of lower costs. If the unit cost of labor and materials could be cut one-third, whether the government aids or not, the wheels of this great industry would restart, the earnings of all connected with it would increase, and that would benefit the consuming power of everybody else all along the line.

But such recovery would be short-lived, unless it were soon followed by an increase in the productive efficiency of the building industry to equal that of other industries. Whereas this is largely an engineering problem, the work of the engineer and of the other coöperating specialists may be greatly aided by effective governmental support — federal, state, and municipal. A small fraction of the grants already made toward building projects, if wisely devoted over a decade to the employment of engineering and legal talent, with friendly coöperation from legislative bodies, might rationalize and unify our multitudinous building regulations. As already suggested, such recodification might save the country $400,000,000 annually on its cost of building construction, including $250,000,000 on housing.

For some years housing has been taking one-fifth of the family budget. At present nobody is getting the housing he wants either in size or quality. If by any of the means suggested, the costs could be lowered, everybody by spending just what he now does could get more in the form of housing. If the cost of his house could be reduced one-third, then he would be able, for the same amount of annual rent, to increase by half its size or quality. This obviously must be done by mass-productive means. No technological unemployment need result, for savings in labor and materials would simply be used to provide the increased housing which the nation needs; and the organization of the industry is much too complex and the materials and methods of production too diverse and entrenched to make rationalization possible short of a decade, or perhaps a generation. And the incidental demand for new capital goods in the form of new processes for the manufacture and assembly of building materials should give new hope and inspiration to the economic and social life of all our people.

THE CAUSES OF WAR

(*Continued from page 296*)

adopted in international relations, but the painful beginnings of attempts in this direction are under way, and I believe that the whole lesson of history points toward the probability that this will ultimately be achieved; in other words, that the world will ultimately adopt a plan of coöperative police protection against nations or groups who transgress the accepted international laws.

I think we should not be frantic, or hysterical, or unduly pessimistic because of the partial failure of recent attempts in this direction. We should remember that it took centuries to reach the present state of relative stability in the interrelationships of small groups. Close interrelations of nations on a world-wide scale are really only about a century or two old, because it is only within that time that communications and transportation have brought nations as a group elbow to elbow. Consequently we may expect that the elimination of prejudices and the handling of sources of friction may occupy several generations more, and that progress will be interspersed with flare-ups of various types.

The second chief cause of war, namely, the outburst resulting from an unendurable complexity of conflicting relationships of political and commercial interests, is really the modern cause of war, essentially replacing the earlier type of war for conquest. To it contribute the factors of universal communication and transportation which I have just mentioned, and also other factors

arising from modern technological progress. These include such items as increased population due to the advances in medical science and sanitation, increased use of raw materials in industry, which have become necessities of life and are procurable only in certain areas of the world, the rapid changing of social and industrial relations because of the introduction of machinery in production.

It is impossible to deny the gravity of the problems which have been raised by these technological changes. It is also obvious that such problems must of necessity accompany large modifications of our social system. These modifications have come almost entirely from developments which in themselves are beneficial, or which at least hold the possibility of immense gain to mankind. *The real problem is whether man can control himself while the proper methods of readjustment are being found and put into effect.* This I take it is by all odds the great problem of society at the present time.

Coming back now to the question of war, I personally would not go so far as to say that fighting is never justifiable, for I believe that the necessity of some type of defense, probably analogous to a police system, will always be a necessary basis for the peace and freedom of individuals and groups.

This does not mean, however, that war is ever justifiable, because in every war there must either have been an unruly aggressor who was in the wrong, or else it should have been possible to find some solution of the difficulties leading toward war which would be more beneficial to all concerned than war, which as a rule has rarely settled and frequently has ultimately intensified the causes which led to it.

Consequently I believe that it is important from time to time to affirm in unmistakable language our opposition to war as a means for settling difficulties. It may be opposed on humanitarian grounds, or on grounds of cold common sense, or both. A strong group statement against war should be at least a negative step which will make war less probable, through the effect of such a statement on political leaders. The more positive approach to the problem is, of course, a constructive move toward the elimination of causes of war and the provision of acceptable means of settling international difficulties. I am a sufficient optimist to believe that distinct progress has been made, even in recent years, toward this end.

WIND AND WATER

(*Continued from page 302*)

made many changes in her with a view to improving her speed. Last year Nicholson turned out a new yacht, *Velsheda*, with a different type of hull. She defeated *Shamrock V* so decisively that her design is thought to be the basis for Sopwith's new boat, *Endeavour*.

The conditions for this year's races are fairer than ever before. Should *Endeavour* turn out to be a failure, the British are allowed to substitute another yacht, possibly *Velsheda*. *Endeavour* will have just as long a "tuning-up" period as the defender, and her owner, who is reported to be a fine helmsman, will sail her himself. While the heavier British winds naturally breed heavy rigging, Sopwith is an airman who should know rig weight and windage, and he is not expected to be at a grave disadvantage in this respect.

Endeavour's hull is plated with steel. While steel plating can be made a trifle lighter than bronze, it must be painted. It is difficult, if not impossible, to obtain a lasting paint finish for a steel vessel's bottom which will be as smooth as the burnished bronze plating used by the defenders. If *Endeavour* does not succeed in finding such a finish, she will be somewhat handicapped in light winds.

As this article goes to press, the last of *Rainbow's* ribs are being sheathed at the historic Herreshoff plant, and her deck planking is being laid. She is an inferno of bolting, riveting, and welding, for she is scheduled to be launched about May 1.

Every line of her hull points toward the particular weather conditions which she will meet next September. Above all things, she must be able to carry her sail steadily in very light winds without being disturbed by the heavy swells which are prevalent on the America's Cup course.

Her long, flaring bow, longer and sharper than any I have ever seen on a yacht, has slightly concave, V-shaped sections above water. Yet below the waterline she carries a surprising amount of displacement well forward, in an unusually buoyant, rounded forefoot. That bow is a match for any swell the Atlantic is likely to offer. She cannot pound; her flare is too steep for that. She is unlikely to bury her nose in a sea, for her buoyant forefoot and flare will lift her free, gently but surely. Nor can she pitch badly; her displacement and weights are too well distributed fore and aft to allow that.

She is nearly a foot narrower than was the shorter, lighter *Enterprise*. She carries her 140 tons or more of displacement very low, with slack bilges and a slight tumble-home amidships. In short, her buoyancy is down under water where the waves can't get at it, and even if she were becalmed in a heavy beam swell, she wouldn't roll much. She will heel enough even in a very light breeze to allow her sails to set steadily, while her very long heavy lead keel can probably be counted on to check excessive heeling.

Rainbow presents a certain superficial analogy to the original *America*. Both designs have longer, more concave ends than their contemporaries, intended in both cases to meet racing conditions (*Concluded on page 332*)

WIND AND WATER

(*Concluded from page 330*)

in the open ocean. *America* had a most advanced and radical rig for her day, and rumor has it that *Rainbow's* rig, which is a product of research in a wind tunnel, will be equally unusual. Her streamlined metal mast will rake aft appreciably, and will be stepped slightly further aft than is customary. With her long bow, she will have an exceptionally large amount of space ahead of the mast in which to rig headsails, if Burgess, her designer, sees fit. She will use the same cross-track boom which added so much to the efficiency of *Enterprise's* mainsail in 1930. The details of her rig are being kept secret.

Rainbow has the same designer and builders, and will be commanded by the same afterguard as *Enterprise*. It seems likely that she will have just as great a success. *Yankee* and *Weetamoe*, two of the trial horses of 1930, are being altered to contest the defense this year. The former, a big, wide, powerful, heavy-weather boat, did not excel in the light winds in which a majority of the trials were held four years ago. Perhaps because of her rounded bow sections, she pounded and "mussed around." Her bow is now being altered in an attempt to remedy this condition. She will be given a more V-shaped entrance, with less bulge above water and a deeper, sharper forefoot below.

Weetamoe was always a good light-weather boat, and might have been chosen to defend the cup in 1930 if she had been given as good spars and as careful tuning as *Enterprise*. She was the narrowest and tenderest of the 1930 contestants. Her keel is now being altered, perhaps to compensate for the added weights of mast and cabin fittings which are forced on her by the new rules. It is reported that she is to carry less lead than before, but with a lower center of gravity.

All indications point to a fairer, more interesting series of races this year than we have seen for a long time. And may the best boat win!

A PLATFORM FOR BUSINESS

(*Continued from page 303*)

Financial Interests must refrain from building top-heavy credit and speculative structures, and must be willing to look to true business service for their profit.

Government must distinguish between business in its proper sense and destructive practices which are unworthy of the name, leaving the former with adequate freedom while it restricts the latter. It must provide the mechanism for distributing the unemployed to occupations where they are needed, and for furnishing an adequate volume of subsistence employment on socially useful work. It must provide a sound monetary and credit system of reasonably steady purchasing power — these two characteristics not necessarily being contradictory; thus will business and agricultural operation be steadied, and financing for improvement and expansion be assured. Finally it must be prepared to assist in all the processes before and hereafter described, preferably by permissive rather than by restrictive action, but with such authority as may be required.

\+ + +

If business is to serve the social purposes outlined above, and serve its own interests in so doing, it must discipline itself, or submit to being disciplined, in several particulars, among which are the following:

Business must not be shortsighted in its distribution of returns, but must give due shares to labor, to the consumer, to management, and to capital.

Business management must be content with business profits, and not make its principal interest the search for illusory and unsocial speculative gains.

Business must not seek to protect itself unduly, but must be willing to undergo the dangers of such a degree of competitive freedom as will insure the orderly and continuous application of improved processes for the general good. (*Concluded on page 334*)

PREPARATORY SCHOOLS FOR BOYS

A PLATFORM FOR BUSINESS

(*Concluded from page 332*)

Business must be willing to outlaw those forms of competition which are in the long run socially destructive, even though immediately profitable.

Business must cheerfully accept proper taxation for socially desirable purposes, and be willing in other ways to submit to that minimum of government control which the general interest requires.

\+ + +

The progress described, based on business enterprise and development, is physically attainable. The resources of our country, the advances of science and technology, and the capacities of our population are all adequate. Only in its social, economic, and governmental aspects need there be fear of failure.

It may be said with confidence that, as a problem of control, such a development is not a matter of detailed planning, or of the application of any one social or economic cure-all. It is believed that the present knowledge of our authorities in business, finance, economics, engineering, and government is such that a good beginning may be made now, provided that this knowledge is organized and coördinated.

As to the vitally necessary coöperation of all the elements of society, it would seem that a beginning made by business in good faith, reënforced by the evident possibility of advantage to all, would serve to bring the correlative practical projects within the possibilities of skilled human leadership.

THE TREND OF AFFAIRS

(*Concluded from page 311*)

It seems clear that the steam locomotive has not yet been refined and developed to anything like its maximum efficiency, or its full possibilities realized. It is certain that the latent possibilities of this reliable, self-contained power plant are many, and the corresponding decrease in operating costs extremely attractive. It seems that with future development along rational engineering lines, the steam locomotive is in a fair way to hold its own against all comers.

To Technology Alumni:

The Committee on Graduation exercises and Senior Week extends a cordial invitation to the alumni and their guests to attend the President's Reception to the Graduates on Tuesday afternoon, June 5, from four to six in the Walker Memorial.

Refreshments will be served from tables with departmental designations arranged in alphabetical order under the balconies and music will be provided for dancing. The laboratories of the Institute will be open for inspection from two to four on the same afternoon.

The number of alumni who are returning each year to participate in this function of Commencement Day is steadily increasing. We shall be honored by your presence.

R. G. HUDSON, *Chairman*
Committee on Graduation Exercises and Senior Week

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TECHNOLOGY MEN IN ACTION

CHECK-LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

College Administrators

¶ When ARTHUR C. WILLARD '04 was elected President of the University of Illinois on March 13, he joined a large group of Technology alumni college administrators. *College Presidents:* HAROLD S. BOARDMAN '96 (retiring), University of Maine; FREDERIC H. SEXTON '01, Nova Scotia Technical College, Halifax; KATHARINE BLUNT '03, Connecticut College for Women; CHARLES H. CLAPP '05, Montana State University; JOHN G. BARRY '07, Texas College of Mines and Metallurgy; PORTER ADAMS '14, Norwich University; MELVILLE F. COOLBAUGH '15, Colorado School of Mines, and JOSEPH P. CONNOLLY '17 (Vice), South Dakota State School of Mines.

Deans: R. G. DUKES '94, Dean of Graduate School and Head of Department of Applied Mechanics, Purdue University; JOHN A. ROSS, Jr., '01, Dean of Administration, Clarkson College of Technology; ELLIS F. LAWRENCE '01, School of Architecture and Applied Arts, University of Oregon; ANDREY A. POTTER '03, Dean of Engineering, Purdue University; ELMER A. HOLBROOK '04, Schools of Engineering and Mines, University of Pittsburgh; EARL G. BILL '05, Dartmouth; CARL T. HUMPHREY '05, School of Engineering, Villanova College; W. S. RODMAN '09, Dean of Engineering, University of Virginia; RICHARD G. TYLER '10, College of Engineering, University of Washington; ROY A. SEATON '11, Dean and Director of Engineering, Kansas State Agricultural College; CARL S. ELL '11, Vice-President and Dean, Northeastern University; LOUIS MITCHELL '15, College of Applied Science, Syracuse University; JOSEPH W. BARKER '16, Columbia; WALTER HAYNES '16, Dean of Engineering, Oregon Institute of Technology; WILLIAM J. MILLER '22, Dean of Engineering, Texas Technical College; exclusive, of course, of M.I.T.'s own administrative officials.

President Willard, who is the latest addition to this group, has had a distinguished career, which is described in the class notes.

In accepting the presidency, Professor Willard said: "The University of Illinois was founded to serve the people and the industries of the state, and the record of its acccomplishments is written largely in the lives of its alumni — the men and women who have been its students and those gone forth to make the world a better place to live in.

"The opportunity and the need for worthwhile service to the state is probably greater today than ever before in the history of the University. This opportunity will be mine, with all the resources which the faculty and scientific staffs of the University, both in Urbana-Champaign and in Chicago, can bring to bear on the educational, as well as the social and industrial, development of the State of Illinois."

Congratulations

¶ To EDWIN B. GOODELL, JR. '15 and ROYAL B. WILLS '18, on being awarded bronze medals for honorable mention in the American Institute of Architects' small house competition, sponsored by Better Homes in America.

¶ To ARTHUR C. HARDY '18, on being awarded a fellowship at the convention of the American Optometric Association by the Distinguished Service Foundation of Optometry.

¶ To WILLIAM A. RILEY '22, on being awarded the James Templeton Kelley fellowship by the Boston Society of Architects, providing a year's travel in Europe.

¶ To LAUREN B. HITCHCOCK '23, on becoming Chairman of the Section of Chemistry, Virginia Academy of Science. He was recently elected to full membership in the American Institute of Chemical Engineers.

In the News

¶ JOHN R. MACOMBER '97, as Chairman of the Board of the newly formed First of Boston Corporation.

¶ JOHN W. BARRIGER '21, as Chief Examiner of the RFC Railroad Division.

Written

¶ By HERBERT B. DWIGHT, Professor in Electrical Engineering, M.I.T., a book entitled "Tables of Integrals and Other Mathematical Data," published by Macmillan, New York.

¶ GEORGE E. HALE '90, an article entitled "Deeper into Space" in the April *Atlantic*.

¶ By ROBERT H. W. LORD '05, an address before the Northeastern Section, American Chemical Society, on "Recent Advances in the Application of Chemistry to Leather Manufacture."

¶ By RICHARD H. FRAZIER '23, a paper entitled "An Experiment in the Honors Treatment of Students in Electrical Engineering," in *School and Society* for March 3, 1934.

Warning

Technology men are warned against an impostor representing himself as a graduate of M.I.T. and a former student of the Sheffield Scientific School in an effort to gain financial backing for an invention or to borrow money. Using the name of RALPH E. ADAMS '04 (who most assuredly he is not), he recently obtained the backing of a financial group in Chicago to develop what he called "the Adams' ray" which would sterilize any object exposed to it. Police are in search of this impostor and the Alumni Association will welcome information which will help to locate him.

Deaths

¶ RALPH F. BRAZER '76, on March 16.

¶ EDWARD S. STEBBINS '76, date unknown.

¶ FREDERICK N. BOSSON '80, on October 6, 1933.

¶ EDWARD A. CHAPEL '83, on September 24, 1933.

¶ HERBERT M. HOWES '88, on March 29.

¶ HARRY A. KENNICOTT '90, on February 7.

¶ HERBERT TUTTLE '90, on March 6.

¶ GEORGE M. YORKE '93, on March 18.

¶ WALTER E. PIPER '94, on April 1.

¶ EDWARD F. SMITH '95, in January.

¶ HARRY D. RAWSON '96, on March 7.

¶ ADOLPH L. FISCHER '03, on November, 4, 1933.

¶ HENRY P. LETTON '11, on March 30.

¶ WALTER E. LOWELL '13, in September.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Washington Society of the M.I.T.

The January meeting of the Washington Society was held at the University Club on January 19, 1934, and the society was fortunate in having for its speaker Dr. James M. Doran, Director of Distilled Spirits Institute, the Code Authority for the distilled spirits industry, and formerly chief of the Bureau of Industrial Alcohol.

Dr. Doran spoke with intimate knowledge on the problems involved in rebuilding the legal liquor industry in the United States, dwelling particularly on the manner in which the industry proposes to aid in eliminating the bootlegger and in suppressing features characterizing the industry before prohibition which are now known to have been detrimental to the industry as well as society.

Dr. Doran outlined the connection between the kidnapping racket and the bootleg industry, particularly with reference to the Bremmer kidnapping case, in which he was intimately interested, being a personal friend of the family. He concluded his formal remarks by a plea to those present to spread among their friends the advice that it is better to pay slightly more for a government-guaranteed, tax-paid liquor than to pay a somewhat lower price for a non-supervised bootlegged product apt to be of poor, if not dangerous, quality, the purchase of which is a direct subsidy to the anti-social elements of the community.

The local society was also pleased to again welcome its former representative on the Alumni Council, Thomas B. Booth '95, who obliged by making a few remarks at the request of our presiding officer.

The meeting was well attended, there being 48 members present including the following: M. L. Emerson '04, J. C. Hawley '93, W. E. Lutz '17, C. W. Doten, D. S. Stanley, Jr. '30, A. E. Beitzell '28, C. W. Duffy '20, Charles H. Stratton '00, O. J. Guy '12, M. Boyle '98, Charles Bittinger '01, William E. Swift '95, A. W. Greely, Jr., H. E. Whitaker '09, John D. Fitch '24, Louis J. Grayson '19, F. L. Tobin '22, C. P. Kerr '11, Edward W. Ritchie '98, F. E. Fowle '94, Proctor L. Dougherty '97, Frank L. Ahern '14, Harry L. Grant '00, A. M. Holcombe '04, W. I. Swanton '93, R. O. Marsh '05, F. P. McKibben '94, Benjamin F. Thomas, Jr. '13, A. L. Sherman '06, L. H. Tripp '06, W. K. MacMahon '22, J. D. Evans '01, J. E. Nolte '98, W. H. Martin '07, Larry Conant '21, Allen Pope '07, A. E. Hanson '14, George D. Mock '28, Edmund H. Lloyd '33, W. M. Corse '99, C. M. Robert, W. Burton '33, H. W. Tyler '84, President, and Joseph Y. Houghton '26, Secretary.

The February meeting was held on Friday, February 10, 1934, at the University Club.

In response to many requests for another exposure of the ideas behind the "New Deal," we obtained as our speaker Mr. D. C. Coyle, Consultant with the National Planning Board and member of the Board of Review of the Federal Emergency Administration of Public Works, and widely known writer on "New Deal" economics.

Mr. Coyle presented a terse condensation of his ideas concerning the fight between business in general as a social class, and finance as an individualistic element exemplified by the promotion of an improved competing structure, in an industry already so overcrowded that its success necessarily results in failures and bankruptcies throughout the balance of that industry.

Mr. Coyle's views were radical, but seemed to be viewed with some degree of favor by the Administration as was vouched for by certain members present who drew attention to code provisions which will not permit new and improved equipment to be installed, unless the business of the industry has reached a point where it can be said that use of such equipment will not draw all business away from the older equipment of others in the industry.

Mr. Coyle's language was well implemented and his remarks so brightened by figures of speech that it will undoubtedly be a long time before they are forgotten.

The meeting was even more largely attended than that which preceded it, there being over 50 members present, including the following: C. W. Brown '99, J. M. Kimble, Jr. '32, R. N. Olin, C. P. Kerr '11, W. E. Lutz, E. D. Merrill '09, Hunley Abbott, E. W. James, H. H. Kelly, W. I. Swanton '93, Harrison P. Eddy, Carey H. Brown, Thomas J. Walsh, M. L. Emerson '04, William Grant, F. Ebling, W. E. O'Brien, J. D. Fitch '24, F. E. Fowle '94, R. O. Marsh, A. L. Sherman '06, W. M. Corse '99, W. H. Martin '11, A. H. Feibel '32, J. C. Dort '09, W. A. Zisman '27, H. M. Morris '00, A. M. Holcombe '04, Edmund H. Lloyd '33, Francis G. Wells '22, D. S. Stanley '30, C. W. Doten, F. B. Wiener '27, W. E. Swift '95, L. G. Cutts, B. A. Bowman '09, J. C. Todd '23, W. G. Waldo '07, O. C. Simpstad, R. S. Buck, Allen Pope '07, Alfred P. Bruce, W. K. MacMahon '22, M. O. Leighton, G. W. Stose, Proctor L. Dougherty '97, J. D. Evans '10, J. E. Nolte '98, Larry Conant '21, H. W. Tyler, President, and Joseph Y. Houghton, Secretary.

At recent luncheon meetings there had been an increasing sentiment that, in addition to the annual banquet, the Society should have an evening stag meeting in lieu of one of the luncheon meetings to make possible the attendance of alumni connected with the "New Deal" whose duties would not permit their taking the necessary time in the middle of the day. A special evening dinner meeting was accordingly held at the Kennedy-Warren on March 8, 1934.

Senator David I. Walsh, senior senator from Massachusetts, and Professor F. P. McKibben '94, of the Federal Emergency Administration of Public Works, were the guests and principal speakers.

At earlier meetings of the year the Society has been given inside views concerning the efforts of various elements of the "alphabet soup" to contribute in their particular way to the peppering of the tureen of business, but no one speaker had been able to present to the Society a chef's eye view of the entire soup. Senator Walsh was the chef whose experience and talents for observation enabled him to do this and his talk covered a wide field in correlating the defensive steps and offensive steps which have been taken in the anti-depression battle.

In this way he explained the aims of NRA, RFC, CWA, and AAA, in particular, and also the various dangers attendant on the activities of each, and the steps being taken to minimize these dangers. The Society was interested to hear that Senator Walsh believed the 59¢ dollar an unimportant detail and this elicited some controversy, the leader of the dissenters being our eminent member Professor C. W. Doten.

The Senator from Massachusetts courteously answered the volley of questions which followed his extremely interesting talk, and the consensus of opinion seems to be that we should have more evening meetings.

Again a large attendance was recorded, there being 53 members present, including the following: W. K. MacMahon '22, M. Boyle '98, J. D. Fitch '24, Benjamin F. Thomas, Jr. '13, F. L. Ahern '14, Francis G. Wells '22, C. W. Brown '99, Allen Pope '07, Joseph Low '11 Sp., D. J. Guy '12, W. E. Lutz '17, C. H. Deetz '89, H. R. Gombell, John Ade Plugge '29, Frederick E. Fowle '94, Frederick F. Schaller '96, John M. Kimble, Jr. '32, Edmund H. Lloyd '33, W. B. Paul '32, S. B. Farness, Jr. '33, T. F. O'Neill '30, C. W. Duffy '20, R. W. Cushing '11, E. S. McKibben '25, H. H. Howland '09, J. W. Clary '96, J. E. Thropp, Jr. '94, Frederick W. Swanton '90, W. I. Swanton '93, Charles W. Stratton '00, J. C. Duherman '95, C. P. Kerr '11, J. D. Evans '01, W. C. Mehaffey '17, D. S. Stanley, Jr. '30, L. D. Grayson '19, G. H. Shaw '09, C. W. Doten, R. K. Doten '27, J. E. Nolte '98, Clarence McDonough '12, K. P. Armstrong '10, Allston Sargent '98, Charles J. McIntosh '03, Hewett Crosby '03, M. I. Walters '23, K. M. Soukaras '28, Lewis Ebbing '35, W. H. Martin '11, Proctor Dougherty '97, Larry Conant '21,

Robert Miller '33. — JOSEPH Y. HOUGHTON, *Secretary*, 406 Munsey Building, Washington, D. C.

Technology Club of New York

Class luncheons and dinners are with us to stay. E. E. Ferguson '30 reports his class dinner as follows: "A very enjoyable class dinner was held by the Class of 1930 Tuesday night, the 13th of March, in the Technology Club rooms. Appropriately and with a snort of disdain for superstition, 13 members of the class living in and near New York City dined together, renewed acquaintances, and rediscovered classmates whose location in the vicinity was not hitherto suspected. Two more members of the class appeared to join in the session held after the meal. No higher tribute to the success of the class dinner could be paid than that it was voted to repeat the dinner on May 23. See the Course VI-A, 1930 class notes for further details concerning this interesting event."

On March 22 the Class of '29 met for dinner, details of which will be reported in the next issue. Final results of the bridge tournament will be available shortly after the concluding sessions are played.

The following new members are cordially welcomed into the fold: Raymond D. Borden '00, L. A. Kolker '31, L. W. Wilson '16, W. R. Franklin '26, J. D. Howell '33, V. R. Lansingh '98, H. A. Dyer '18, P. F. Kershaw '23, R. G. Knowland '16, W. A. Launder '32, J. G. Strobridge '19, F. J. Laverty '22, R. W. Meyers '32, V. L. Parsegian '33, G. W. Fuller '90, and W. D. Neuberg '17.

The brief mention made in the March issue of The Review of our efforts to place Tech men in positions has prompted several alumni who know of available openings to write and let us know about them. Such coöperation as this is indeed gratifying and is most welcome. During the month of February the Club placed six men. — MILTON MALE, *Assistant Treasurer*, 71 Broadway, New York, N. Y.

M.I.T. Club of Western Pennsylvania

A regular monthly dinner meeting of the club was held on Wednesday, March 21, 1934, at the University Club, Pittsburgh.

A German supper, with beer, ale, pig's knuckles, and sauerkraut, was served. President Dexter appointed a nominating committee and completed other routine business in very short order.

Our speaker was City Councilman John J. Kane and his topic "Organized Labor in the New Deal," a most timely one in view of the present labor difficulties. Mr. Kane was well qualified to talk on this subject as he started his career in a newspaper pressroom. He has spent much of his life in the interests of organized labor and is now President of the Allied Printing Trades Council of Pittsburgh. He relinquished a seat in the Pennsylvania State Legislature to serve the people of Pittsburgh as Councilman.

Mr. Kane's approach to the labor problem was a new one to many of our members. He traced the history of organized labor in the United States and told us of some of its aims and how they fitted in with the policies of the New Deal. He stressed particularly labor's fight for shorter hours to spread employment and keep up purchasing power, and also touched on the activities of the unions in bettering working conditions and improving the workers technical skill. It was his contention that all labor disputes can be settled by conciliation or arbitration to the mutual advantage of both capital and labor. It was Mr. Kane's idea that the financial interests had been responsible for forcing employers to lower wages and thus accentuate and prolong the depression through which we are now passing. He warned us of the danger of the growth of so called "radical" unions and proposed the recognition of unions such as those in the American Federation of Labor as the solution to this problem.

A lively discussion followed his address before the meeting adjourned. About 35 members were present. — C. M. BOARDMAN '25, *Assistant Secretary*, Duquesne Light Company, Pittsburgh, Pa.

Technology Club of Central Florida

Harvey M. Mansfield, '83 was reëlected President of the Technology Club of Central Florida at the annual meeting held March 3. Walter N. Munroe was reëlected Vice-President and M. R. McKinley was reëlected Secretary-Treasurer. W. B. Newell was acting Secretary of the meeting. Attending were: F. O. Adams, O. C. Chapman, A. W. Higgins, R. D. Jackson, C. F. Kuhn, W. H. Leathers, M. J. Mackler, F. D. Mendenhall, E. B. Sedgwick, and the officers. The meeting was held at the El Boulevard restaurant. — MALCOLM R. MCKINLEY '19, *Secretary*, Tampa Electric Company, Tampa, Fla.

Indiana Association of M.I.T.

Dr. Compton's recent visit to Purdue gave the Indiana Association the opportunity of meeting our President at luncheon during his stop-off in Indianapolis on his way to Lafayette. A luncheon meeting was called for Monday, March 12, at the Indianapolis Athletic Club, and resulted in a nearly 100% turnout.

It was indeed a pleasure to meet Dr. Compton and to hear from his own lips the progress that has been made by the Institute in spite of the depression, and the masterly manner in which M.I.T. has met the circumstances caused by the economic situation of the last three years. — E. M. MCNALLY '18, *Secretary*, The Barbasol Company, Indianapolis, Ind.

Southwestern Association of M.I.T.

Herewith is a report of the visit of Dean Emerson, a copy of which will serve as a record of the first meeting in many months of the Southwestern Association. Dean Emerson was met at the station by Joe Murphy, R. E. Jenks, John Driggs, and myself. Driggs shortly departed on business and after breakfast I left the party, which went to a hotel. After a short rest, Jenks took Dean Emerson in town and, to tell the truth, I don't know what they did.

I met the crowd at lunch at the University Club. The following were present: Guests — Dean Emerson, John Murphy, brother of Joe Murphy, Dennis Murphy, father of Joe Murphy, R. Howard, director of Kansas City Art Institute, Paul Weigel, Manhattan, Kan., friend of Dean Emerson; Members — Paul Gardner '17, E. M. Price '08, H. C. Smith '12, R. J. Sholtz '22, A. T. Cushing '11, D. C. Bollard '07, F. H. Littrell '23, R. E. Jenks '28, J. D. Murphy '29, J. H. Driggs '21, A. S. Keene '98, G. W. Hall, Jr., '23, J. J. Falkenberg '19, W. L. McPherrin '14, Eltweed Pomeroy '23, Everett Weatherly '29, F. C. Hutchinson '27, H. F. Hoit '97, H. A. Kinzer '32, J. R. Higgins, student. Total present: 25.

After lunch Dean Emerson gave a talk which was enjoyed by all present. The party broke up after 2:30, Murphy and Jenks undertaking to get Dean Emerson to the Art Gallery for a visit, where I understood a news reporter was to meet them. I am sure that the boys got Dean Emerson down to the station in ample time for his train, although I was not with the party in the afternoon. The Kansas City crowd turned out in good shape, and I am sure that Dean Emerson accomplished his purpose and enjoyed his visit. — ELTWEED POMEROY '23, *Secretary*, 3609 Forest Avenue, Kansas City, Mo.

Technology Club of Shanghai

The first meeting for the year 1934 was held on Tuesday, February 6, at seven P.M. in the dining hall of Kincheng Bank on Kiangse Road. The hosts of the evening were the new officers, including Messrs. K. T. Lee, Z. Z. Li, and T. C. Wang. In spite of the bitter wintry weather, 34 members turned out, but the foreign members were conspicuously missing except for A. E. Golding. The Chinese Hall of the Bank was luxuriously decorated, and through the efforts of the chairman, a first-class dinner was served which was enjoyed by all those who were present.

After the dinner, the meeting was called to order by chairman K. T. Lee. The minutes of the last meeting, submitted by the former Secretary, M. C. Chan, were read and passed. Then letters from Professor Locke and Dr. A. W. Rowe were read. These letters were acknowledgments of our contribution of $50 U. S. Currency to the M.I.T. Athletic Association.

T. K. Kao then brought up the suggestion of our subscription to the *Journal* of American and Chinese Engineers and suggested sending one to the M.I.T. library, but the suggestion received no support from the audience, who thought it best to let the Association of American

and Chinese Engineers give the free subscription to the Institute. The meeting was adjourned at 9:30 P.M. after a vote of thanks was given by the audience to the hosts of the evening. — Z. Z. LI '22, *Secretary*, Tonying Silk Trading Company, Ltd., 15 Museum Road, Shanghai, China.

CLASS NOTES

1875

It becomes my sad duty to inform the members of the class of the death of its Secretary and Treasurer. Our loved classmate, Joseph Warren Homer, died suddenly on February 26 at the Baker Memorial Hospital in Boston after a short sojourn there, where he had gone for rest and observation. He is survived by his widow and a daughter.

Homer was connected with the class during our third year as a special. He was born in Roxbury, Mass., June 1, 1851, and was the son of Thomas Johnston and Mary E. (Fisher) Homer. Graduated from the Roxbury Latin School in 1868, he first entered Williams College with the Class of 1872, but owing to eye trouble had to leave. After several mechanical employments he became interested in "Visible Speech," which later brought him into contact with Alexander Graham Bell at the time that the latter was experimenting with the transmission of speech. At Bell's request, Homer suggested the name of "telephone" for his invention. In 1876 Homer founded the Rhode Island State School for the Deaf, which institution is still functioning at Providence.

In 1888 Homer married Constance Smith of Cincinnati, Ohio, by whom he had three children, two girls and a boy. His son, Joseph W., Jr., entered Tech, Class of 1919, but left to join the Navy in 1917 as aviator with the rank of ensign. He did not survive his service. Homer, though his connection with the class was short, was always keenly interested in it, and on the death of Warren in 1932 consented to take over the duties of Secretary and Treasurer, which he faithfully and ably performed to the end. It will be hard to replace him. — THOMAS HIBBARD, *President*, 4 Ridge Road, Milton, Mass.

1876

Under date of March 16, we read the following item in the *Transcript* concerning Ralph Brazer, who was a special student in our class: "Ralph F. Brazer died at the Phillips House, Massachusetts General Hospital, today. He was in his 78th year, and for 50 years he was a partner in the Lowell firm of William P. Brazer and Company, dealers in sporting goods. He was born in Lowell, and his parents were William P. and Mary (Fletcher) Brazer. He studied at M.I.T. and he had a summer home at Ogunquit, Me., where he was extensively interested in real estate, and did considerable toward developing that section. . . ."

Notice has also been received of the death of Edward S. Stebbins, IV, of Minneapolis (date unknown). Stebbins was a special in the Course in Architecture. He located in Minneapolis in 1877 and has been in practice there ever since. In 1932 I received a letter from him on the letterhead of Stebbins, Haxby and Bissell, Architects, 1111 Nicollet Avenue. He was 80 years old in February. — CHARLES T. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass.

1882

Our Assistant Secretary, Rachel Snow, writing from Istanbul, Turkey, gives an interesting outline of her experiences since leaving America last June. From her letter of December 4, 1933, we quote the following: "The trip from New York to Istanbul on an American Export boat consumed three weeks — a succession of lazy days on a calm sea with a pleasant group of 11. We made brief stops at Malta, Athens, and Saloniki and reached here July 3. As Mission Meeting was in progress I saw many old friends from different parts of Turkey and helped to celebrate the Glorious Fourth with a picnic and swim and then a tea at the American Embassy.

"The first six weeks slipped by very fast with some sight-seeing, a weekly trip to a beautiful beach at the Black Sea end of the Bosphorus and many days of just enjoying this lovely spot which overlooks the Bosphorus. You see I am living in Roumeli Hissar quite near Robert College so am in a community of Americans, English, and various other nationalities. It is a beauty spot with lovely gardens and beautiful trees and always the blue Bosphorus below us. The summer was clear and cool for the most part. The last two weeks in August we went camping on the slopes of Ulu Dagh or Mt. Olympus as the Greeks called it. It is not the Mt. Olympus of the gods but a high peak above Brusa in the ancient province of Bithynia. We lived among the spruces at an altitude of 5,000 feet and had only some shepherds for neighbors. Hiking, picnicking, and swimming in the pools of mountain streams occupied our days and gave me more pep than I have had for years.

"The next expedition was to Albania. My host and hostess (Rev. and Mrs. J. K. Birge) and I were gone for three weeks — breaking the journey at Saloniki both going and returning. We found Albania very beautiful with its wonderful mountains and very picturesque in the life and costumes of the people. Mr. Birge has a good friend (Albanian) in the Foreign Ministry who introduced us to many interesting people and made it possible for us to see and do what the ordinary traveler cannot.

"Since our return I have made two trips by myself into the interior of Turkey — by boat up the Black Sea to Samsun, by camion into Merzifon, then on by train to Kayseri (the ancient Caesarea) and Talas and back to Istanbul. That took me to the very center of Turkey, where I saw the country as it used to be, for many things are little changed in spite of all the marvelous reforms of the Gazi. The East moves slowly. The new Turkey I saw in a five-day visit to Ankara (Angora), the new capital which is being rapidly transformed from an interesting village to a modern European city with fine buildings, wide boulevards, and beautiful homes."

Repeating their experiences of a year ago, Charles and Mrs. Jenkins have been spending the cold season in St. Petersburg, Fla. They are fortunate in avoiding a very severe winter.

At the Annual Dinner of the Alumni Association, in February, Arthur Walker was the sole representative of the Class of '82. More class members should attend these interesting gatherings.

The time is approaching when arrangements for our Fifty-Second Reunion should be considered. The feeling so far expressed favors Baldpate Inn for the meeting place, and the first week in June as the time for the outing. Detailed notices will be sent to members within a few weeks. — ALFRED L. DARROW, *Secretary*, 39 Garrison Road, Brookline, Mass. RACHEL P. SNOW, *Assistant Secretary*, Central P. O., Box 142, Istanbul, Turkey.

1884

The New York *Sun* reports that Dr. H. W. Tyler, consultant in science to the Library of Congress, has been elected Vice-President of the Association of University Professors. Apropos of his retirement as General Secretary of this Association, the following appeared in the January number of the *Bulletin:*

"Almost from its beginning the American Association of University Professors was fortunate in securing the services of Professor H. W. Tyler as its General Secretary. Through all the years of its growth he has occupied that position. In its development from an organization of small membership and of minor importance to its present status, Professor Tyler has borne a leading part. To him, more than to any other man, that advance has been due. His enthusiasm for the Association, his organizing skill in its service, his wide acquaintance with college teachers, his industry and tact, his kindly and genial manner, his wisdom in the consideration both of matters of policy and items of detail have been assets upon which the Association has ever confidently relied. Upon the occasion of his retirement from the office of General Secretary, the Association puts on record its appreciation of his services and its sense of obligation for the results which he has done so much to attain. It congratulates itself that he is still to retain an official relation with the Association and bespeaks a continuation of the advice which has been so valuable in the past. And it wishes for him in this vote which, of necessity, must be general, but which nevertheless expresses the hearty personal feeling of each and every member of the organization, health, prosperity, and happiness in the years to come." — AUGUSTUS H. GILL, *Secretary*, Room 4-053, M.I.T., Cambridge, Mass.

1888

Those present at the alumni Home-Coming Dinner at Walker Memorial on February 17 included the following: Bridges, Buttolph, Cole, Collins, Ellis, Horn, Sawyer, Webster, Williams, Wood, and his son-in-law, making 11 in all, a pretty good showing. John Runkle intended to be present but at the last moment he decided to take no chances with a threatening cold. Another example of his good judgment.

Our classmate, Charles W. Sabine, and Mrs. Sabine have just announced the engagement of their daughter, Mary, to Mr. Edward Morton Jennings, Jr. Miss Sabine is a Junior League Member and prominent socially. The Sabine summer estate in Duxbury is noted for its wonderful flower and vegetable gardens.

Following are extracts from a letter to the Class by Walter K. Shaw, Jr., concerning his father: "I wish to thank you very much for the roses and larkspurs which were sent to my father's service from the Class of '88. He was very proud of being both a Technology graduate and a member of your class. The mast of the *Andiamo*, on which you sailed at your Forty-fifth Reunion at Rockport, was designed by my father and with its help he beat the much advertised *Vanitie* and *Weetamoe* on actual time in racing from Provincetown to Marblehead."

Ben Buttolph, while rummaging in an old trunk recently, ran across a letter by Amos Erastus Woodward '88, mining engineer, which he wrote 43 years ago in February, 1891, in reply to an invitation to our class dinner three years after graduation. At that time Woodward was in from Jefferson City, Mo., where he was Assistant Geologist of the State of Missouri. He went from Jefferson City to Castle, Mont., where he died in September, 1891, of malignant typhoid fever. Here are a few extracts from this old letter which will be of interest to Woodward's friends: "Perhaps you don't remember that Jefferson City (or Jeff City as the inhabitants call it) is the capital of the glorious old State of Missouri. Well I'll be hanged if I did two months before I got this job and if you could only see the town, and not see the capitol building you'd call it the slowest, sleepiest Dutch town that was ever sprung on to an intelligent State. It has got a blamed fine penitentiary but when you've said that you've said all. When the enthusiastic Jeffersonite speaks of the population of the town, he always includes the prisoners at the 'pen' (some 2,000) and never mentions this fact when he says that Jeff has 5,000 people there. Principal business is politics but they do make some wretched beer here, too. I transformed an old money vault into a chemical laboratory and here day after day through the devilish hot weather of a Missouri summer, I worked and sweltered and cussed my lot." And so on for seven pages. Poor Woodward.

Your Secretary is now back at Chebeague Island for the spring and summer. He expects to send you all a letter late in May or early in June so get prepared for it. — BERTRAND R. T. COLLINS, *Secretary*, Chebeague Island, Maine.

1890

The Secretary has two short items of news for the column this month: It is with regret that we record the death of Herbert C. Tuttle '90, who died on March 6, at Babylon, N. Y., in his 65th year.

Pierre S. du Pont's picture appeared in the New York *Herald-Tribune* of March 6 together with an account of his activities as chairman of the committee which is to study the railroad situation and recommend solutions for basic problems as they affect security owners. — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1892

You will recall that when I recorded in these notes the death of our classmate, Wallace McCaw, I said that I should later have something to publish about his life and work. Now, one of his close friends, Scott Parrish, sends the following. Those of us who were at the reunion at Lyme in 1932 will long remember the life and good fellowship that radiated from these two on that occasion, and it is with unmeasurable regret that we must realize that that partnership is dissolved.

Wallace E. McCaw of New York City died of a heart attack on October 4 last at his summer home on Lake George. He was born in Mobile, Ala., July 2, 1871, and was graduated from M.I.T. in the Class of 1892, one of its youngest members. He was a member of Alpha Theta Chapter of Sigma Chi. After leaving Tech, he established the McCaw Manufacturing Company in Macon, Ga., which gave him an excellent opportunity to study the vegetable fats, especially cotton seed oil, and he was one of the first to make a lard substitute from cotton seed oil.

In 1908 he sold his business to the Procter and Gamble Company of Cincinnati and was made Vice-President and General Manager and President of its subsidiary, the Buck Eye Cotton Oil Company. He negotiated the purchase of certain English patents for the Procter and Gamble Company, under which the product Crisco was made and introduced. Under his leadership the cotton seed oil department of Procter and Gamble made very substantial gains. In 1923 he left Procter and Gamble and later became connected with Colgate and Company as Vice-President and was active in merging this company with the Palmolive Company in 1928. Shortly after this he retired from active corporation work.

McCaw was a loyal alumnus, and always interested in every activity of his class. His last meeting with his fellows was at Old Lyme, Conn., in June, 1932, on the occasion of our Fortieth Class Reunion.

His life reflected great credit on his alma mater and he added honor to its good name. We shall miss him and the sympathy of all members of the class goes out to his wife, Hazelhurst Plant McCaw, his two sons, Wallace and Plant, his three daughters, Margaret, Hazlehurst, and Fluelyn, and several grandchildren. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass.

1894

As these notes are written, an announcement regarding our Fortieth Reunion has gone to all members of the class for whom we have addresses. We hope the response to this notice will be prompt and favorable to a large attendance to celebrate the two score years of active life since leaving the old buildings in Boston. A Local Committee will arrange details for entertainment not specifically mentioned in the class notes, and no effort will be spared to make this reunion as successful as any we have had in the past. On going over the list of class members, we find a large number of names of those who have not been heard from for many years. Information would be gladly received by the secretary as to the addresses and positions of any who may be living.

Kindly read over the following names and, if you have information, return it on your reply card or by letter: E. W. Abell, F. M. Adams, H. W. Bartlett, R. N. Bennett, J. A. Binney, C. E. Bowers, J. H. Buttimer, J. C. Carlton, T. I. Chapman, J. C. Clarke, H. B. Cutler, C. L. Davis, C. W. Dennis, W. G. Douglas, A. S. Erskine, G. W. Frank, Jr., C. E. Gilpin, B. S. Garrison, P. H. Haskell, B. E. Holden, E. S. Hughes, D. R. Jacob, J. Jenson, H. E. Johnson, W. A. Johnson, J. W. Jones, J. W. Kittredge, P. W. Lincoln, G. S. McLaren, C. W. McMurtry, Mary I. McNear, N. H. Morison, J. L. Nisbet, H. Okada, C. G. Osgood, W. E. Parnell, W. E. Patterson, A. R. Pike, A. W. Randall, G. Ray, J. H. Ruddick, T. McK. Sharpe, G. E. Shulze, M. Sichel, F. L. Smith, J. W. Tarbox, G. M. Turner, J. R. Wade, A. E. Weidinger, H. H. Whitney, J. M. Young.

A notice of the Daytona Beach Art School which recently appeared in the Boston *Herald* brings in this unusual manner an item in regard to John A. Rogers whom some of us will remember as a member of the Freshman Football Team, and later as a student in the Architectural Department. This notice, after describing the work of the school, states: "The school's etching department is headed by John A. Rogers, well-known etcher and architect. Mr. Rogers received his training at the Art Institute of Chicago and Massachusetts Institute of Technology." The class will be pleased to hear of his success, and to know he is one of the group of distinguished etchers who have been trained at M.I.T. — SAMUEL C. PRESCOTT, *Secretary*, Room 10-405, M.I.T., Cambridge, Mass.

1895

Apparently there is little of note happening among the '95 men during the past month. It is barely possible that everyone is busy endeavoring to adjust themselves to the habit of living up to a

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"code." As the spring business improves, we may hear more about some of their gainful accomplishments.

Another of our men has passed away. This month we regret to learn of the death of Edward F. Smith, who resided in Altadena, Calif. His death occurred during the month of January. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

Report has been received of the death on March 7 of Harry Rawson. No details are yet available, but will be secured and reported in a later issue.

Joe Stickney has sent on a picture of himself and Wayne which was taken on the occasion of the visit of President Compton to the Indianapolis Club on March 12. Wayne as President of the Indianapolis Club had charge of the luncheon at which 16 were present. The luncheon was held at the Indianapolis Athletic Club, of which Stickney is President. The Club bulletin of February contained the annual address of the President in which Joe reviewed the activities and progress of the club during the past year. Following the example of The Technology Review and the Alumni Association, the club, under Joe's management, has done exceedingly well financially. Although the income has been reduced, the gross operating costs were likewise reduced, with the result that the net showing for 1933 was $10,000 better than for 1932. One innovation which followed the repeal of prohibition was the "Pink Tea hour" when on five days a week, between the hours of 4:00 and 7:00 P.M., the facilities of the grill are placed at the service presumably of the tea drinkers, and this has become a very popular feature. Joe has done such a satisfactory job as President that he was unanimously reëlected for another year at the annual meeting in February, along with the other officers and directors.

On March 7 Will Coolidge attended the Corporation meeting of Technology, and in the late afternoon he gave a very interesting talk before the Physical Society at M.I.T. on "The Place of the Physicist in Industrial Research."

At the time these notes are being prepared in the last week of March no report has been received from Gene Hultman on his trip with Mrs. Hultman to far-off South America, but it is anticipated that complete details will be available for the next issue and, furthermore, that by that time the golf season will have opened, and something may be heard from Joe Driscoll and Damon, and others, on their prospects for the coming year. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1898

The Alumni Dinner on February 17 brought out quite a crowd of '98 men: Coombs, Fiske, Walter Kimball, Peavey, Perley, George Smith, Henry Sullivan, Treat, Chapin, Richmond, Barker, Wright, and Blanchard. Coombs has been in Gloucester this winter but expects to return to California. George Cottle and Arthur Porter were off on a trip together, having suddenly decided to take a United Fruit Company boat for Central America. — Bob Allyn was appointed by Mayor LaGuardia on February 13 as deputy commissioner in the Sanitation Department to supervise Brooklyn.

Areli Jacoby died on February 23. We copy the following from the Boston *Transcript:* "Areli Hull Jacoby, prominent in dyestuff and textile circles, died on Friday at his residence in Ashby. He was 57 years old. Mr. Jacoby was born in Wilkesbarre, Pa., on April 1, 1877. He was graduated from the M.I.T. in 1898. His advancement in his profession was rapid.

"He was associated in a managerial capacity with F. E. Atteaux and Company, the American Dyewood Company, and the National Aniline and Chemical Company, Inc. He was appointed in 1919 as technical adviser to the American Unofficial Delegation to the Reparation Commission at Paris, and represented the United States and the Textile Alliance, Inc., in the distribution of reparation dyes.

"He retired from active business in 1918 and made his residence thereafter in Ashby, which town he served in many offices. He is survived by his widow, Mrs. Blanche Campbell Jacoby, daughter of Dr. Benjamin F. Campbell; his son, Gordon C. Jacoby; an adopted son, Paul C. Jacoby, and two grandchildren." — ARTHUR A. BLANCHARD, *Secretary*, Room 4-160, M.I.T., Cambridge, Mass.

1899

Those of you who have not read "Horses and Apples" by Bassett Jones have a treat ahead. You may not always agree with all of his hypotheses, you may not even understand them all, but you will enjoy what he has to say about some methods of doing things, and what he says will give you pause to think.

John A. Walls of Baltimore, Md., was elected President of the Pennsylvania Water and Power Company and of the Safe Harbor Water Power Commission on December 21 last. This bit of news was coyly hidden by the honoree. In fact, a clipping bureau supplied me with these facts.

Still more of our '99 group have taken a hand with the New Deal. Colonel Harry L. Morse, West Roxbury, Mass., was appointed Chief Purchasing Agent for the Massachusetts CWA some time ago. Harry now has quite a portion of the alphabet after his name — F.A.U.S.A. and B.S.M.I.T., and now CWA. Much to my amazement the *Traveler*, Boston, Mass., records as a fact that Harry's American ancestors settled in New England in 1683. Page Columbus or Leif Ericson!

Gardner Barry is doing some good work, though he is too modest to say so, with the 105th Company of the Civilian Conservation Corps near Sandwich, Mass. It is to be hoped that this particular work, so well begun, will be continued in some permanent form, especially with a view to reducing the fire hazard which besets the New England coast and mountains.

Frank Fowle in jocular vein writes from Chicago that business is better and he will see me next time he is in Washington. That message came to my desk some weeks ago, and I have not seen him yet. Hervey J. Skinner did come to town, but he chose a time when I was out of town. Arthur Hamilton and his wife headed South in February, probably to escape some of our nice winter weather, and he, too, chose to pass through Washington when I was obliged to be elsewhere. It looks as though there was collusion somewhere along the line. Lew Emery, though, did not escape me. He was singing at Town Hall in February when I was in New York and we had a reunion all our own during which he regaled me with tales of his foreign tour last summer. Later he came through Washington and continued the tale of the charms of Ragusa, that fascinating old city on the Dalmatian Coast, as well as of the other quaint places on the tour on which he embarked from there. He stopped at Athens, Istanbul, Rhodes, and Cypress. Thence he traveled to Palestine, Syria, Alexandria, Sicily, and finally from Genoa to Monte Carlo and home via Paris and London. Next summer he hopes to take an Odyssey cruise starting at Venice and retracing the steps of Homer on his memorable trip through the Greek Islands. Such trips should rate something from the traveler in the form of a diary perhaps for the benefit of those not so foot-loose.

Out of the silence of some 34 years came a message from E. T. Stewart. I viewed it with complacency because, believe it or not, Stewart was so touched by my letter sent out in February, 1932, that he answered it in 1934. So distressed was he by my predicament of having to make bricks without straw, so to speak, that he sent me a delightful and whimsical diagnosis of the malady of unresponsiveness which has been epidemic among '99 alumni. He has reduced it to percentages: Lack of time, 5%; lack of important news, 15%; pessimism, 20%; procrastination, 25%, laziness, 20%; forgetfulness, 10%; x-unknown quantity %, 5%; total 100%. The figures are his own. I will not change them. Stewart did comment modestly that he felt that mostly the class members feel that they have no important news. And right here I implore you one and all to let me be the judge and send me all the news you can garner. Few there are of our retiring group who recognize the fact that items concerning themselves and their families are news. In fact if we cut out such items, we will have only a blank column and we have had several of these this winter.

After 34 years Stewart told me the story of his life — a life lived in at least ten states, part of it in Florida during the

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boom. For the last three years he has been employed on research for the Westchester Project in New York and charts and diagrams prepared by him will form a part of the report soon to be published. Just at the moment he is working with our own W. B. Flynn, electrical engineer, who is in charge of maintenance for the Warner Quinlan Company — gas and oil.

From Arthur Foote in Grass Valley, Calif., I received a letter telling me something of the conditions in that district. Being a gold mining district times are on the up and up. He tells me, though, that it would be extremely difficult for any new mining company to get a start and operate under the new rules and regulations. Perhaps the rules may change. If not, the wealth of Midas may rest undisturbed for many moons so far as new development is concerned.

Wedding bells rang in Highland Park November last when Elsie Crane Watkins, daughter of Frederick A. Watkins, married Francis Dickin Weeks of Milwaukee at the First Presbyterian Church. This "news" was deftly concealed by Watkins until he saw the error of such secretiveness when my last appeal for news reached him. — Wedding bells are going to ring sometime this spring in Newton, Mass., when Miss Flora Hinckley, daughter of Benjamin S. Hinckley, will marry Dr. Loring Beal Andrews of Watertown, Mass.

From the State Department I learn that Robert Frazer, Jr., has left Calcutta and now represents Uncle Sam in London, England. He is the Consul General stationed there and he resides at 15 Cavendish Square. From Frazer himself I have heard not a word.

Regretfully I record the passing of several of our classmates: Judge H. P. Farnham died at Peabody, Mass., January 1, 1934. He was Peabody's first and only city solicitor and at the time of his death was revising the city ordinances.

Through James Dryer, of Rochester, N. Y., I learned of the sudden death of Herbert H. Adams, engineering and maintenance superintendent of the Eastman Kodak Company, who died unexpectedly February 28 while on a vessel bound for the south seas. He was a World War veteran and his work as lieutenant colonel of the 12th Engineers in France, and subsequently as a colonel on the General Staff, won him a citation for distinguished service and appointment as officer in the Legion of Honor.

Word has reached me also of the death of Mrs. James Henry Hancock of Hudson, Mass. Helen L. Burr of Melrose, Mass., died on July 16, 1933.

Most profoundly shocking, however, was the news of the death of Nelson T. Samuels, son of Edwin F. Samuels of Baltimore, Md. Nelson was one of the Naval Academy graduates of 1933 who did not receive a commission because of the curtailment policy of the Navy Department. Being interested in aviation, he joined the Army and was sent to Randolph Field, Texas, for preliminary instruction in flying. He was then transferred to Kelly Field where he was stationed when the crash of his plane resulted in his death on March 13, 1934. — W. M. CORSE, *Secretary*, 800 18th Street, N. W., Washington, D. C.

1900

Bill Everett writes: "I read with a great deal of interest your 1900 news in The Review, and it is a big disappointment when there is a blank space on the pages between '98 and '01. When that occurs all of the fellows are like myself, expecting you to do it all. I know you did a good part of it on that freshman ball team back in the spring of '97 but you shouldn't be expected to do it now, so here goes for my mite. My son, Douglas, has just been taken into the firm with which he has been associated since graduating from Dartmouth in 1926, under the firm name of Morrill and Everett, Real Estate and Insurance, Concord, N. H. He has two children, Edward Foster, aged three, and Jean, one and a half. My daughter, Barbara, Mrs. Sidney C. Hayward of Hanover, N. H., has one daughter, Nancy, one year old. My daughter, Miriam, is a sophomore at Connecticut College for Women and my youngest daughter, Elizabeth, is a junior in Concord High School.

"I still cling to the old job of Highway Commissioner and we have been doing a lot of work the last few years, and, I hope, making some improvements. We haven't found any way to build our roads during the winter season so the poor tourist has to bump over construction from time to time during the summer. We are a little chesty because of the fact that we have been able to keep our main roads open during this very severe winter with very little inconvenience to traffic. I still keep up my activities in Masonic work and I have hopes of attending the tri-annual conclave of Knight Templars at San Francisco in July as Grand Generalissimo of the Grand Commandery of New Hampshire. There haven't been any articles published bearing my John Hancock except the annual report of the State Highway Department, and old General Public says he has to come into the office to have that interpreted."

Word has been received from M.I.T. of the death of William C. Saunders, Course II, of Seattle last December.

Tom Perry sends in the following: "I have been keeping your letter regarding the class dinner on my desk but have been prevented from answering it because of my absorption in NRA code problems of our industry. I spent practically all of my time the past four months on this work and nearly half of it has been in Washington as chairman of the Cost Committee of the industry. I have been privileged to see some exceedingly interesting and epoch-making events. Not the least of the benefits of this entire New Deal is the obligation imposed on the far-flung battle line of a special industry to coördinate their efforts and learn to know their competitors and their industry's problems. Most manufacturers find that their competitors have not nearly as many cloven hoofs or hidden horns as was suspected, and, in my judgment, the necessity of working together will result in lasting good that will endure long after the NRA movement is lost in history. Another impression that has been very firmly established in my mind is that the National Government has no desire to enter into actual operation of industry. It has always been my experience that industry is required to regulate and administer its own affairs under a new series of laws that have been set up to aid in our passage from one economic era to another. I firmly believe that the era of rugged individualism in business has virtually passed out and that we are entering a new page in history in an era that will be conspicuous for its supervised coöperation under government regulations administered by the industry. While not of the same political complexion as our esteemed President, I feel strongly that he has rendered an outstanding service to the country in this time of transition.

Incidentally, a scrap of family news may interest the rest of the class; that is, that my oldest son, Bretton, who spent three years at M.I.T. in the Building Construction Course, is completing his work at the Speed Scientific School of the University of Louisville, and is working on a coöperative thesis with Winold Reiss, who graduates from M.I.T. this year in the Architectural Engineering Course. The boys are working out their tests at both ends of the line and are developing some very practical results in the deflection of plywood in the construction industry. It is perhaps one of the few cases of a coöperative thesis having been carried on between schools so far apart. The youngest son, Thomas D., Jr., is a junior at Yale with very strong leanings in the musical direction, though how any of my sons could be musical appears beyond explanation. Occasionally, I run across our near classmate, Frank D. Rash '01, in Louisville. He has recently been honored by election as President of the Federal Land Bank there. While in a measure retired from his profession, he is rendering a very admirable public service in various governmental capacities. With best regards to yourself and the rest of the gang."

One more out of the list of unknown addresses as we have heard from James M. Fraser, IV, from Cleveland, Ohio.

Charles Hughes writes: "I am writing a book on Engineering Materials with chapters on Testing Machines; Iron — gray, malleable, wrought, alloy; Steel — rolling, casting, forging; Heat Treating; Carbon and alloy steels; Non-ferrous metals and alloys — copper, tin, zinc, and so on; Bi-metals; Non-metallic materials — plastics, insulating, and so on. A material is covered thus (a) composition, (b) tests, (c) properties; plus data that will be useful to students, as at M.I.T. and colleges giving engineering courses, later when outside in the business world, and also to others as designers and engineers engaged in preparing drawings and writing specifications. In your

1900 Continued

notice, there was noted 'that there are only a few of the faithful.' If such is the case, it may be safe now in asking who, in a lecture by Professor Cross on light, threw a dead mouse at one of the co-eds? This is the only problem I can remember not being solved at M.I.T. but am living in hopes it will be some day."

Part of a letter from Sperry reads: "My oldest son, Marcy L. Sperry, Jr., graduated from Yale scientific school last June and is now taking a post-graduate course at M.I.T. The second boy, William, is at the Episcopal High School in Alexandria, Va. I wrote you about a year ago of my change in business connections, but in case my former letter is not readily available, it is to the effect that I am now in the capital city as President of the Washington Gas Light Company and in charge of the operations of its subsidiary and affiliated companies, there being two in the District, two in Virginia, and three in Maryland, which companies furnish gas to what might be called the Washington metropolitan area. Since coming here in June, 1932, you can appreciate that the combination of tackling a new job, together with all that has happened in our economic life in that period, has kept me unusually busy, so that I have indulged in no real vacation trips, but have been here most of the time, with short trips to New York and Boston. If any of you fellows come to Washington at any time, be sure to call me up at the office — District 8500 — and if I am not in, leave word where I can reach you. With sincere regards and best wishes to you all."

Ted Brigham, XIII, writes: "I have been for two years connected with the Board of Education in Greenport and two years ago the Board started the erection of a new grade and high school building at a cost of $550,000. This building was finished this summer and the school started the first of September to use the building. At the election of the Board the first of August I was elected the President of the School Board and still hold that position. This may be of interest and it may not, but it is the only thing that you might say that I have done outside of ordinary everyday things. This school building is considered to be one of the finest schools of its type in the state. When I am in Boston next time I will surely drop in and see you."

Other evidences of continued animation from Cy Hapgood, Geoge Russell, Ed Brigham, Brock, and Walter Rapp.

The Chicago *Tribune*, December 22, carried a long article about Frank D. Chase, recently appointed executive director of the CWA in the State of Illinois. Frank has been chief of the engineering staff since the drive to employ a quarter of a million idle Illinoisans started. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

In order that a proud record — at least I am proud of it — shall not be broken, I am dictating this on my way to the train. There are a few matters, however, which I feel should be laid before the electorate.

Last night we had a meeting of the Alumni Council at which the members of the Department of Economics presented surveys of the present economic trend in these United States. No economist myself, though one who has practised that worthy New England virtue from which the patronymic of the field derives, I was profoundly impressed with one poignant omission. One of the group, designated by his fellows as the optimist, touched upon current human relations in this best of all possible worlds but failed to elaborate on one of the principal motivating agencies that seems to be the most potent in the present Washington set-up. I can describe it best, perhaps, and emphasize my point by telling a story.

A number of years ago when the General Court of the Commonwealth of Massachusetts convened for its first session after an election, among the newcomers was the representative of a small rural community in the Berkshires. As the winter's work progressed, it was noticed that every time a bill was presented for action which called for the expenditure of money, he invariably voted in the affirmative. Strange as it may seem, some few of these bills were not worthy, and after due deliberation one of the older members of the House called upon him and said, "So and so, some of us have noticed that every time a bill is presented calling for an outlay of public funds that you vote in favor of it. Now a lot of these bills are good and should be supported but some of them are not and you should vote against them. We suggest that you consider the merits of each bill as presented and vote in accordance with its merit." The newly elected member turned upon his mentor and said, "Look here, brother, I was born in Brookline but my people moved into the western part of the state when I was less than a year old and I have lived on a farm all my life. The only important financial operation I ever undertook was to build a henhouse and I didn't have money enough to finish it. And by —— you can't stop me spending money now!" This attitude would seem to be in perfect harmony with the administration's policy.

Speaking of which, our good friend Frank Chase, who has been Executive Director of the Illinois Civil Works Administration, was recently appointed State Administrator of the CWA. — Our old friend Jack Scully has also just retired as Director of Federal Emergency Relief for the Commonwealth of Massachusetts after a most successful administration which began last August. Jack was recently tendered a complimentary dinner by a group of the mayors of the towns in the state, in token of their appreciation of the splendid work which he has done in relieving distress in their several constituencies. Jack's department has been the only one which has escaped adverse criticism or suggestion of maladministration. We have every reason to be very proud of the record which he made.

Reverting to the administration again, I am reminded of another story, the subtlety of which will, I am sure, not be wasted on the elect. A New York farmer from upstate visited the metropolis for the first time, and in conformity with the traditional practices of his tribe, embarked upon a sight-seeing bus. As they progressed up Fifth Avenue the barker at the end of the wagon called attention to the Gould mansion. The visitor, belonging to an older generation, said "Jay?" To which the barker replied, "No, George." A little farther on the Vanderbilt homestead was pointed out and the visitor queried, "Cornelius?" only to receive the reply "No, Alfred." In a moment the barker pointed to a very beautiful structure and said, "That is Christ Church." Said the visitor, "Jesus, I presume, or am I wrong again?" Tell that as a bedtime story to the little ones and you will get a reputation for sober information that will enhance your memory among the survivors when you are gone, as I shall be in three minutes if the train starts on time. — ALLAN WINTER ROWE, *Secretary*, 4 Newbury Street, Boston, Mass.

1904

Chronologically speaking, the first item to be mentioned in these notes would be the participation of the Class in the Annual Dinner of the Alumni Association which was held on February 17. Greatly to my regret I was unable to attend this dinner on account of the fact that I was at that time in the hospital. However, a number of my classmates called on me that afternoon at the hospital and then proceeded to the Walker Memorial where the dinner was held, and it is a source of satisfaction to know that '04 was very well represented at the dinner. Those present were E. F. Allbright, Hump Haley, Walter Whitmore, Ed Parker, Charlie Stebbins, Carle Hayward, Bill Evans, Don Galusha, Dwight Fellows, and Howard Moore. Reports that reached me were to the effect that they all enjoyed a very pleasant evening.

Under date of March 14 I received the following communication from our Washington correspondent, Mert Emerson. "All members of the class join in congratulations and best wishes to 'General' and Mrs. Holcombe. The wedding of our Assistant Class Secretary and long-distance, year 'round golfer, whose many courtesies are well remembered by all Tech men who visit Washington, took place at the home of the bride's brother near Philadelphia on March 8, 1934. The 'General' expects to continue his golf and to keep his record 100% on class reunions."

The information given by our correspondent was rather meager and I immediately wrote to the General extending to him the official congratulations and best wishes of the Class and requesting him to send me further information. This request brought forth a formal an-

1904 Continued

nouncement reading as follows: "Mr. Amasa Maynard Holcombe and Mrs. Violet Strong Gillett announce their marriage on Thursday the eighth of March, Nineteen hundred and thirty-four at Lenni, Pennsylvania," with a card announcing that they would be at home after the 15th of September at 8 Rosemary Street, Chevy Chase, Md., and I know very well that the General would be most happy to greet any member of the Class who may be in that vicinity at any time.

Under date of January 6 Professor Locke produced the following information, but it was received by me too late for inclusion in the March issue, and although it is slightly out of date at present it still gives more information about Guy Riddell. I have not heard whether he returned in March, as expected, or not.

"Guy C. Riddell left for Europe and the U. S. S. R. early in January for discussion with officials in Moscow of the extensive petroleum and natural gas development program. This is based on an extensive report prepared during the last five months under Mr. Riddell's direction by American engineers and geologists. He expects to return in March."

I was very glad to receive the following letter from A. P. Weymouth under date of March 17: "Have not written you for a good many years, but as I was in Chicago this past week attending the Annual Convention of the American Railway Engineering Association, I thought I would report to you on the 1904 men there.

"Saw Bernard Blum of the Northern Pacific, Guy Palmer of the B. & O., and E. E. Stetson of the Pennsylvania. Stet and I had lunch together at the Pennsylvania R. R. table at the convention luncheon on Wednesday. The three above mentioned, as you know, as well as myself, were all Course I of 1904.

"It was on Wednesday, the 14th, that the papers announced the election of A. C. Willard as President of the University of Illinois, so I cut the article out of the Chicago *News* and am enclosing it to you herewith, although perhaps it has already been reported to you, as no doubt the Boston papers also carried the announcement. This photograph does not bear much resemblance to his picture in the Senior Portfolio of 1904, as you will observe if you still have your copy of the class pictures. I looked mine up on my return from Chicago, and was much interested in seeing again how the classmates looked 30 years ago. We must all be getting old, don't you think?

"I still pay my dues to the Alumni Association so I get The Technology Review and am always interested in reading the class news. Sorry to learn of Lee Phillips' death. He was located here in Pittsburgh some years ago and I saw quite a bit of him then, but did not know what had become of him in recent years."

Weymouth's letter forms a very good introduction for the big item of news for this issue, that of the election of Arthur Willard as President of the University of Illinois. Previous to the receipt of Weymouth's letter I had learned of Willard's election and had immediately written to him offering our congratulations and asking him for some information, and in answer to my request received the following letter.

"Yours of the 15th is the most sincerely appreciated of all the many letters and telegrams which have come to me since the announcement of my new job here at Illinois.

"Measured in time, it seems a long distance back to June, 1904, when our class assembled for the last farewells in the old Rogers Building on Boylston Street and went forth 'to lick the world.' Measured in memories of those years at Tech with you and the other members of '04, it seems no distance at all, and so far as I am concerned, it might be only yesterday.

"In response to your command for personal information, and I shall always regard myself a subject to your orders, I am enclosing a newspaper clipping which contains a number of facts and a great many friendly comments, which, knowing me as you do, you can freely discount. At any rate, you may be able to get some kind of a story out of this material which my classmates may recognize as a sketch of the fellow who graduated from the Institute as a chemical engineer in 1904. With my very best personal regards to you and the best class that Tech ever turned out. . . ."

From the clippings mentioned by Willard and by Weymouth I have put together a brief history of our now very distinguished classmate.

He was born August 12, 1878, in Washington, D. C., the son of Alex D. and Sarah Cutts Willard. He was graduated from Central High School in Washington in 1897, and studied in the National School of Pharmacy between 1898 and 1900. As we all know, in the fall of 1900 he entered the Massachusetts Institute of Technology with the great and glorious Class of 1904. After graduation he taught at the California School of Mechanical Arts in San Francisco, then for three years at George Washington University, Washington, D. C., where he was married on November 26, 1907, to Sarah Lamborn.

From 1909 until 1913 he served in the U. S. War Department as Sanitary and Heating Engineer. The War Department was reported as reluctant to lose him to the University of Illinois in 1913, but he decided to go West and entered the Department of Mechanical Engineering at the University as Assistant Professor. Four years later he was made full Professor, in 1920 named head of the Department of Mechanical Engineering, and last fall assumed the duties of Acting Dean of the School of Engineering.

During his years of service at the University he became widely known as a consulting engineer, having acted in that capacity for the National Army Encampments in the summer of 1917 and also for the Bureau of Mines. He has been consultant on ventilation for the Holland Tunnel, New York City, since 1920 and also served as consultant on ventilation to the Chemical War Service in 1920, to the U. S. Public Health Service in 1927 and on the proposed Chicago subway in 1930. He is a member of the American Society of Mechanical Engineers, of the American Society of Heating and Ventilating Engineers, of which he was President in 1928–1929, and has been the author of many booklets, pamphlets, magazine articles, and other writings on heating and ventilation.

The foregoing will give his classmates a brief and comprehensive story of Willard's progress from the time he left the Institute to his present high position in the educational world and I am very sure that we all feel that he is to be congratulated on being chosen to fill such a responsible position and we also feel that the University of Illinois is fortunate in being able to secure the services of such a man. Elsewhere in this issue of The Review will be found another article, probably in more detail, regarding his election as President.

The remaining item of interest which may be included in these notes is to mention again the Thirtieth Reunion coming on June 22, 23, and 24 at East Bay Lodge, Osterville, Mass. You have already received preliminary notification regarding the reunion and final details will be in your hands very shortly. It is hoped that we may have a large, enthusiastic attendance.

EXTRA!! After the preceding notes were typed I received a letter from the Assistant Secretary in response to my request for details regarding the wedding. The letter was sent from Southwick, Mass., and I include it in the notes in order that the General's classmates may be fully informed regarding this great event.

"Your very welcome letter of March 16 reached me yesterday, when Mrs. H. and I drove to Boston to make some necessary purchases and let me do a little business. Unfortunately I did not get around to our office until 5 P.M. and so couldn't 'phone you, but I do appreciate your prompt reaction to the big news, and am glad you are getting on your feet again.

"You probably have an official announcement by now, but I ought to add that Lenni is near Media, that it took me from 7.30 A.M. to 3.00 P.M. to drive there from Washington in a blizzard, that the bride was becomingly gowned in rose-red with sweet peas to match, that the house was decorated with snapdragon, and the minister wore all the usual trappings, notwithstanding that the affair was on such short notice that I had to buy the ring on the way from the Court House to the ceremony, which was at the home of the bride's brother, Commander J. H. Strong, U.S.N. The reason for the rush was that he found he was leaving for China or somewhere immediately, and so it was then or wait an indefinite while for his return, and there was no one else in the bride's

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family to do the deed properly in her opinion. Mrs. Holcombe was formerly the wife of my second cousin, Kenneth Gillett, who died about six months after my first wife, Eleanor, leaving three boys and a good business rather hard hit by the depression. So I am in the nursery business now by proxy, and as the shipping season will be on in June I shall probably be in this neighborhood and hope to make the Reunion.

"We spent our honeymoon at Atlantic City, also in a snowstorm, and are now in the midst of moving most of the furniture here to Washington where I have had to enlarge our facilities by moving to the country, Chevy Chase to be specific, where I can get a big enough house for little enough money, having five children and four automobiles to house.

"If I have omitted any details, you are authorized to draw upon your imagination for them. You will not be able to conjure up anything stranger than the truth, incredible as it may seem. But I am looking forward with much anticipation of real joy to the moving and settling in the new house. I shall at least have a real motive for the next few years until some of my family have finished their education and are self-supporting.

"Tell the gang that I am much nearer the golf club now than before, so I shall be ready for all comers. Thank you for your good words." — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 8 Rosemary Street, Chevy Chase, Md.

1905

After a good many years' service as class representative on the Alumni Council, Grove Marcy, II, has felt called upon to resign. In spite of sincere urging, he insisted that the decision was final. All Technology should thank Grove for his loyal and efficient service. Sid Strickland, IV, has consented to serve in his stead.

Putnam's spring catalog contains the following announcement of a new book, "White Indians of Darien" (Tentative Title) by our Richard O. Marsh, I. It says: "The author of this book is under sentence of death in the Republic of Panama for 'inciting to murder and rebellion.' He will be shot on sight if he enters that country, but legal technicalities have fortunately prevented his being extradited. Only a recent change in the attitude of the United States' State Department enables him to tell this amazing story which often verges on the fantastic. Many readers will at first be skeptical, but documentation is offered on the most incredible portions of the narrative.

"Richard Oglesby Marsh, former U. S. Chargé d'Affaires at Panama City and erstwhile partner of General Goethals of Canal fame, is an engineer by profession. He now occupies an important post under Secretary Ickes. Several years ago he was commissioned by Henry Ford and Harvey Firestone to investigate the possibilities of rubber growing on a large commercial scale in Panama. The result of Marsh's explorations was a redrawing of the map of Darien, which up to that time had been one of the least-known sections of the world.

"But there were still more extraordinary results. Marsh led a scientific expedition into the mysterious interior of Darien, an expedition backed by the Smithsonian Institution, the American Museum of Natural History, the University of Rochester, and by various departments of the U. S. government. The death toll was appalling, but Marsh and a few associates finally reached the Atlantic, after having crossed the Isthmus of Darien. When the first accounts of Marsh's story reached the United States from reporters in Panama, certain eminent scientists had no hesitation in calling him a liar. Indians as blond as Norwegians belonged only in the realm of mythology, they said. But Marsh brought some of his White Indians to the United States and precipitated an ethnological controversy which is still unsettled. Certain linguists have even gone on record as claiming that many of the words used by the Tule Indians are of Scandinavian origin!

"Then comes the most extraordinary part of all. When the Panama government decided to subjugate the San Blas and Tule Indians of Darien, Marsh returned to raise the Indians and drive out the Panama garrisons. He was everywhere successful — and his Indians are still living in virtual independence. But Marsh is an outlaw in Panama by Presidential decree."

George Thomas, II, writes: "We used to have a flock of more or less serious accidents at Beverly almost daily. The past year we operated for more than 50 weeks, or approximately seven million man hours without a single lost-time accident. This is probably the best record yet made in a plant comparable to ours anywhere in the country, and we are proud of it. Too bad we could not have made a complete year of it."

That refers to the factory of the United Shoe Machinery Corporation of which George is general superintendent. The Boston *Herald* of March 9 adds that it established a New England record for safety, winning the trophy of the Massachusetts Safety Council. It was the equivalent of one man working 2,900 years without losing a day's pay. Congratulations.

George continues: "I have a daughter, aged 20, in Paris, who thinks she wants to teach French some time. She is a student at Wellesley, and is taking her junior year in France. Probably by the time she finishes her course in Wellesley, she will have acquired herself a husband and, instead of working for a living, as all women should, she will bring me a nice imitation French Duke or Count or something to support.

"Every year some one at the Institute remembers me and sends me a pair or a trio of students who not only want a subject for a thesis, but some one to write said thesis for them. My own thesis was a mess. I did lots of work on it, but the write-up was awful. Since I have taken up this writing of second-hand theses, I think I should be allowed to rewrite my own."

From Leon Morrill, V, 100 Sixth Avenue, New York: "I have been here since November, 1931, as Assistant General Manager of the General Printing Ink Corporation. As you know, we went into a merger with four other ink concerns in 1929. We have survived the depression better than many others, and are glad to say that we feel now that business is definitely on the pick up.

"I do not believe I would want to be buried here although, as far as work is concerned, I can say that I like it, but I much prefer to live in Boston. However, I am getting used to the life. I am living in Port Washington, Long Island, and do not see much city life as it is quite a trip on the train and too far to come in evenings, except occasionally."

True to form, Mrs. Dan Adams writes as Dan's, II, secretary to your Secretary, this time from Hotel Astor, Paris: "Your January appeal has filtered through to us here. Dan is working in Paris this winter and I am watching him do it. He already has a masterly command of taxicab and technical French and he carries a briquet like a real Frenchman, but not a full beard yet.

"I wonder if you read about the French political riots in your newspapers. They occur almost daily but so far, they are fairly easy to keep out of as the time and place is always announced in advance."

From Oscar Merrill, I, 1419 Chrysler Building: "You know, about eight or nine months ago I had a nice little typewritten reply all made to one of your requests, but when I gave it the final 'go over' it read too much like a sketch by an M. C. for the Congressional Directory and I just tore it up and chucked it into the waste basket. Now under all these circumstances, what the devil is a fellow to do? (What the devil is a Class Secretary to do? R. D.)

"This World Power Conference, at the head of whose American Section I happen to be sitting, is an international association started ten years ago to discuss problems of power development and use, to exchange information, and, in general, to promote the idea of a more efficient use of power resources.

"All the countries whose names are at the top of the front page are in it (48), though naturally about ten of them carry most of the load. It holds 'conferences' from time to time and its International Executive Council meets annually. Representation of the American Committee at these annual Council meetings is one of my jobs.

"The Council carries on a considerable amount of inter-conference activities, mostly technical, enough of it in any event to keep me continuously busy. The Conference also serves to start things that others are more competent to perform. It has organized an International Commission on Large Dams for study and experiment on construction and operation

1905 Continued

of dams. It has set certain international standardization activities into motion. It has had under consideration means for establishing systematic international exchange of the results of hydraulic laboratory research. It has run against obstacles in the international field, but in the United States through the initiative of the American Committee a systematic and periodic interchange of such data has been effected, with the U. S. Bureau of Standards serving as the clearing house. About a hundred copies of the semi-annual reports are sent by the Bureau to laboratories and research workers abroad.

"Then the World Power Conference serves, first, as a forum for the discussion of matters related directly or indirectly to 'power' in the broad meaning of that term; and, second, as a medium for initiating action through other organizations on matters which appear, from discussions in its meetings, to be desirable objects for international collaboration. Strongly opposed to duplication of international organizations or activities, it performs no work which any other organization is equipped to do; it passes the various proposals on to others; it offers the service of its national committees to help start things going; and then stops there.

"Now, I could give you a lot more information of this sort were it of use to you. Anyway don't forget to drop in sometime. Everybody comes sometime to New York."

Last September Boston papers reported the disappearance of Carlton Atwood, VI, from Revere Beach. It is pleasant to report that he is living at 20 Rutland Square, Boston. — Billy Bixby, II and VI, has left Blawnox and is living at 20 West Street, Woburn, Mass., not far from Bob Lord, X. — Bob writes that he sees Bob Folsom, X, quite often. That's fine. Perhaps Bob L. can get something out of Bob F. We couldn't. — Bill Gouinlock, III, has a boy at Syracuse and sees T. Green, I, occasionally, so he says.

From Harry Nabstedt, I, Davenport, Iowa: "My last job worth while was in connection with the Rodriguez Dam near Tijuana, Baja California, Mexico. This dam is being built for the Mexican Government at a cost of $4,250,000. It is the highest Ambursen dam ever constructed and has some interesting construction and engineering features which are attracting the attention of the engineering world, such as the maximum section of the dam being supported by an arch spanning the base of the canyon and the cut-off or sealing wall extending down into the foundation a distance of about 300 feet below the base of the dam.

"After getting that job under way and installing a half million dollar construction plant, I took over the western department of the Ambursen Construction and Ambursen Dam Companies and succeeded in having quite a few of our dams adopted in California and Arizona.

"During the two past years I have been back in Davenport looking after my personal interests which required attention due to the turn in affairs and am representing the companies throughout the Middle West. Am not bragging about the results. Feeling fine and am hopeful that things will turn out all right."

Two classmates, long missing, have popped up: Renshaw Borie, II, at 1301 Spruce Street, Philadelphia, and Charles Borie Rhodes, VI, at 211-11th Street, Santa Monica, Calif. No other information is obtainable, even the relationship, if any. — Mail has been returned from two more: Charles Robert Adams, I, whose last address was Downieville, Calif., and George A. Hool, I, who once lived at the Hotel Shelton, New York, and was connected with the John W. Ferguson Company. Any information will be appreciated. — It is now Captain William A. Hall, XIII, U.S.N. Address: Bureau of Navigation, Washington.

Herbert Bailey, V, writes from Ontario, Calif., where he serves the Exchange Orange Products Company: "It happens to be raining a little, even though this is Sunny California and I have not filled up very many cylinders this afternoon for my Secretary to type, so probably she will not mind writing to you today.

"My daughter, Lucy, has been living with her grandfather in Lawrence, Kansas, and taking her Master's Degree work there at the University. My son, Edgar, who is this year a senior at the University of Redlands, was one of the Eagle Boy Scouts to attend the Jamboree in Hungary last summer, and was on his way back while we were in Chicago for the American Chemical Society meeting. We arranged, therefore, that he should stop at Detroit, meet his mother there and drive with her back to Chicago in a new Dodge which my brother, one of the Dodge Brothers' engineers, had purchased for me. They picked me up at Chicago, and we drove on out here. We certainly enjoyed the trip as it was the first time any of us had ever made any extended overland auto tour. We made it home from Chicago, 2,300 plus miles, in four days and a half, including a side trip of almost half a day up into Zion National Park.

"I notice that as the years go by the news from members of the class tends more and more to concern the children rather than us folks that are getting old, therefore I may add that Edgar is captain of his track team at Redlands University, and Lucy is doing graduate work in the Library School of Western Reserve at Cleveland. So far as the old man is concerned, he is just working 45 or 50 hours a week, and enjoying a very comfortable old colonial home in Sunny California." — ROSWELL DAVIS, *Secretary*, Wes Station, Middletown, Conn. SIDNEY T. STRICKLAND, *Assistant Secretary*, 20 Newbury Street, Boston, Mass.

1906

Nine members of the class attended the homecoming dinner held at Walker Memorial on February 17. They were: A. M. Bellamy (V), Sherman Chase (XI), Henry Ginsburg (VI), Sam Nash (II), E. B. Rowe (VIII), A. B. Sherman (VI), J. G. Souther (II), David Eames (II) and the Secretary. Nash seemed to be his usual rotund self and is now located in Boston, specifically as a Government inspector for the Navy Department with headquarters at the Boston Navy Yard. All the members present greatly enjoyed the affair which far exceeded in interest and enthusiasm previous events of this kind.

A clipping under the date of January 19, 1934, imparts the following information about Nugent Fallon. "Nugent Fallon of Boston and New York today was appointed district manager of the Home Owners' Loan Corporation for the states of Massachusetts, Connecticut, Maine, New Hampshire, New Jersey, New York, Rhode Island and Vermont, according to dispatches from Washington. At one time Fallon was district superintendent of the South Boston division of the Boston Elevated, rising from a conductor. He is a graduate of M.I.T. Later he became an executive in several corporations. During the war he was instructor of aviation at the government aero station at Pensacola, Fla. Cardinal O'Connell officiated at his wedding in 1918 to Miss Elizabeth Sara Fitzpatrick of Brookline." As this item will be more than three months' old by the time it reaches its readers, it can hardly be classed as news. Having no information to the contrary, it is assumed that Fallon still holds the job; anyway, the paper is to be congratulated for not referring to it as the H.O.L.C.

Thanks to Professor Locke, who is now Secretary of the Alumni Association, a news service regarding the miners is now available as the following three items will testify: "Edward McKay Chase is now located as metallurgical engineer at 1052 Subway Terminal Building in Los Angeles. — F. W. Libbey, who has been operating in the Globe Miami district for some months, has moved to Phoenix, Ariz., where he will make his home and possible headquarters. In addition to other matters to which he will devote his attention, he will be associated with the Nellie Meda gold mines in a consulting capacity. — Marden W. Hayward, of the El Paso office of the American Metal Company, has been recently in Shafter, Texas, where he studied the geology and planned the new development work in connection with the proposed reopening of the old Presidio mine. This property had a record of producing about 1,000,000 ounces of silver annually prior to the time it was closed in 1930 on account of a drop in silver prices. The price of 64½ cents per ounce recently put upon the metal will mean that the mine will benefit and probably be able to show a profit from operation." — J. W. KIDDER, *Secretary*, Room 1001, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills, Mass.

1907

Gracious letters of thanks and appreciation have been received by the Secretary from Phil Walker and Fred Jaccard

1907 Continued

as the result of his having written to them, following the death of sons, as recorded in previous issues of The Review.

Jaccard writes that his son "had practically finished his schooling and was getting a little practical training in Chicago preparatory to looking around for a job in his profession of electrical engineering when he was taken." He goes on to say that "the rest of the family are all in good health and getting along nicely. Jane, the oldest daughter, is attending the Montana State College at Bozeman, Mont.; Eugenie, 19 years old, is attending business college in Butte; Helen Louise, 17, and Gilbert, 15, are in high school in Butte; Leslie Carolyn, eight, is in grade school; and Hiel Eugene, four, is not yet ready for school." Fred says he is still holding down the job of mechanical superintendent of the Butte mines for the Anaconda Company, and that he has been having some experiences during the past two years trying to operate them with very little help. He thinks that things are on the mend and that when this period is over, the Butte Mines will come back better than ever.

In Phil Walker's letter he mentions the fact that his son, Philip B., Jr., hopes to receive his degree at Tech this coming June in the course in Architectural Engineering, and suggests that we give a list in our notes of sons of '07 men who are graduates or undergraduates at the Institute.

In line with this helpful suggestion we have examined the directory of students for 1933–34 as published by the Institute and find the following men besides Walker are now students: Horace Irving Crane, son of George Crane, having received his S.B. in 1933, is pursuing studies leading toward the degree of doctor of philosophy in chemistry; Luis Victor Emilio, of Salem, Mass., son of S. G. Emilio, is taking mechanical engineering in the Class of 1936; Emory G. Hukill, Jr., of Cleveland Heights, son of Emory G., is in the Class of 1937, in Business and Engineering Administration, option in chemical engineering; Gerald Carden Hudson, son of Ralph Hudson, himself a professor at Tech, hopes to receive his degree in architecture this June; Sam Jasper Loring, son of Henry D. Loring of Cincinnati, is in the Class of 1936, in General Engineering; Robert L. Moody, son of Harry, in the course in ship operation, is a senior this year; Thomas C. Keeling, Jr., son of Tom, from Nashville, Tenn., is in the Class of 1935, taking the chemical engineering option of the Course in Business and Engineering Administration.

We have tried to make this list complete. If any reader knows of a son of an '07 man who is now a student at Tech whose name is not included, the Secretary will appreciate being notified and will make correction in the next Review. Also in the next number he will include a list of sons of '07 men who are graduates of the Institute.

In the formation of a state mining organization in Montana for the purpose of seeking federal aid for the operators of gold properties, Carl Trauerman is active, having presided and been named temporary President at the first meeting on March 2. — Miss Barbara Coffin, debutante daughter of William B. Coffin, had a leading part in "Vincent Ventures," an amateur musical revue presented in the Wilbur Theater in Boston on March 21, 22, and 23 by the Vincent Club, an organization of young society women. — BRYANT NICHOLS, *Secretary*, 12 Newland Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

The class was unusually well represented at the Alumni Dinner, February 17. The following were present: George Belcher, Eber Wells, Ted Joy, Sam Hatch, Newhall, Toot Ellis, Clarence Clark, McAuliffe, Damon, Lang Coffin, and Myron Davis.

Mr. and Mrs. George J. Putnam have announced the engagement of their niece, Harriet Huntington Smith, to Mason Tuxbury Whiting.

We are planning to have a get-together dinner of the class some time in May. Usual return postal cards with further data regarding it will be sent out shortly. — HAROLD L. CARTER, *Secretary*, 185 Franklin Street, Boston, Mass.

1909

1909–1934. Twenty-fifth Year Reunion, Oyster Harbors Club, Osterville, Cape Cod, Mass., June 22–24. Are you going? You can't afford to miss it! Twenty-five years out! Our silver anniversary! We want you and your family. Already several have signified their intention of going, and we know you will enjoy being at Oyster Harbors Club, too.

Mollie Scharff sends the following: "On January 15, I attended the annual dinner of the American Institute of Consulting Engineers to hear Professor 'Jerry' Hunsaker, M.I.T. 1912, discuss recent developments in aviation; found myself sitting next to Lester Gardner, M.I.T. '98; and then heard the principal discussion of Professor Hunsaker's talk presented by Jim Critchett, of our class. It was a regular Technology and 1909 evening and I gathered that Jim was a leading authority on the welding of aluminum alloys and the contribution of metallurgy to the aviation industry.

"I also attended the stated meeting of the Corporation on March 7 and found a 100% attendance by our 1909 representatives — Tom Desmond, Bradley Dewey, and myself. Tom, by the way, is continuing to make political history here in New York by sponsoring some of the most important bills before the current session of the Legislature, including the New York City Charter Bill, the Mortgage Bill, and others."

G. A. Joslin, mining engineer, at 1200 Reeves-Strong Building, Los Angeles, Calif., who has only returned in December from an extended mine examination trip in Mexico, left again early in the year for another extended professional journey. He estimates that on his last trip, covering the States of Sonora, Sinoloa, and Chihuahua, he spent the equivalent of two solid months in mule riding.

On March 7, Art Shaw of Metcalf and Eddy read a paper before the Sanitary Section of the Boston Society of Civil Engineers on "The Newton High Level Sewer."

John Hutchinson, son of B. E. Hutchinson, is a freshman at Harvard. Hutchinson's daughter, Thayer, now a freshman at Smith College, had her coming out party last December. "B. E." is Vice-President and Treasurer of the Chrysler Corporation and Chairman of the Board of Directors of the Plymouth Motor Car Company.

Leon J. D. Healy, Consulting Chemist and Engineer, Milwaukee, Wis., writes: "We had such a good time at the Twentieth Reunion at Osterville, that we laid our plans at that time to attend the Twenty-Fifth Reunion. As far as we can see now, the Healy family will be there." — John Nickerson, who is associated with Cheney Brothers, has been active on Code work. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. PAUL M. WISWALL, *Assistant Secretary*, General Foods Corporation, 250 Park Avenue, New York, N. Y. MAURICE R. SCHARFF, *Assistant Secretary*, Main and Company, 1 Wall Street, New York, N. Y.

1910

Not a single letter has come to your Secretary this month. I used to think that if we could once get started having Class Notes appear regularly, it would encourage people to write, but it doesn't seem to work that way. The issue is saved from being a complete flop by a couple of newspaper notices. The Boston *Transcript* had a notice about the air mail operation by the Army in which it said: "The zone commander of the eastern district, which includes New England will be Major Byron Q. Jones, a native New Yorker and West Point graduate, 1912, and one of the Army's pioneer aviators. Major Jones was stationed in Boston in 1915 and 1916, where he took courses in aerodynamics at M.I.T. Major Jones will receive his orders direct from Major General Foulois and local Army officials said today that they expected details of the New England project not later than tomorrow. Seven planes are available at Boston, it was stated, ready for immediate operation upon orders from Major Jones." Jones took Course XIII with our class. It is rather a coincidence that two of our classmates, both named B. Jones, should achieve prominence in the Army Air Service.

The other newspaper notice is from a Chicago paper as follows: "Stuart Chase, noted economist, author, and lecturer, will make his first appearance on the North Shore tomorrow night in the Haven School auditorium, speaking on the subject, "The Roosevelt Administration." His lecture is open to the public and is being sponsored by the Evanston

1910 Continued

(Ill.) Teachers' Club. Mr. Chase is a graduate of Harvard University and the M.I.T. and has traveled in practically every country in the world, analyzing and comparing conditions at home and abroad. He has written several books, among them, 'Tragedy of Waste,' 'Your Money's Worth,' 'Men and Machines,' and 'Mexico.'" — DUDLEY CLAPP, *Secretary*, 40 Water Street, East Cambridge, Mass.

1911

Spring (so-called) is at this moment entering on her third day with continued cold climatic conditions, but this gives me courage to hope that by the law of opposites my predicted reawakening urge among classmates to "Write to Dennie" will bear immediate fruit.

About the time these notes appear one of our classmates will be due in New York with his wife on a short leave of absence from his mining activities in South America. I refer to Franklin Osborn, III, of the Andes Copper Mining Company, Potrerillos, Chile. While here during May and June, Frank will make headquarters at 41 Brace Road, Hartford, Conn., and has requested that his name be put on the mailing list for New England as he wants to be in on any functions. He says: "I expect to be rather busy but I hope to be able to see you and the fellows this year."

Bob Haslam, X, Vice-President of Standard Oil Development Company, still has his office at 26 Broadway, New York, but since most of the activities of Standard Oil of New Jersey have been transferred to offices in Rockefeller Center, Bob is an elusive individual to see. However, I finally managed to get a story from him on his winter trip to Germany.

"There was nothing particularly exciting about it," says Bob, "just a routine business trip. I was gone, all told, only about five weeks, going via the *Rex* through Genoa, and returning on the *Europa* from Cherbourg. Most of my time was spent up at Heidelberg and Ludwigshafen-on-the-Rhine, although I did get to Berlin, the Hague, and Paris, my stay at these latter places only being for one or two days each.

"Personally, I was quite impressed with the situation in Germany. Everybody seemed to be cheerful, happy, and well taken care of. Coming back on the *Europa* the ocean was a little rough, but nothing at all unusual for that time of year.

"These last four or five months have been particularly busy for me, because I have had charge of our lubricating oil sales and at the same time have had to keep charge of our usual line of research, development, and engineering. It is a rather funny combination, isn't it?"

A fine letter from Harold Robinson, I, arrived this morning, just in time for inclusion. Hal reports engineering very quiet in Worcester, Mass., at present, but he maintains his usual cheeriness and interest in keeping class notes active. He and Mrs. Robinson are giving us 1911 fathers and mothers marks to shoot at, witness:

"Our oldest boy, now a junior at Norwich University, is on the Dean's list with an average of 87%. Gets that from his mother. Our daughter, being in the first seventh of her class, enters Wellesley without taking any exams. Also smartness by Ma. Our youngest boy enters high school next fall. Surely we are getting old, though I can't say I feel much older. Breath is a little shorter after exercising but otherwise the same."

From Professor Locke we learn that Donald Barton, III, has closed his consulting office in Houston, Texas, and accepted a position as consulting and research geologist for the Humble Oil and Refining Company. Also from Cambridge we learn that Paul Cushman, VI, has transferred his professorial activities from Vanderbilt University, Nashville, Tenn., to Valparaiso University, Valparaiso, Ind. To date our letter to him at his new post has brought no response, but here's hoping! Two of our wandering service officers now are reported as: Commander Ralph T. Hanson, XIII-A, Puget Sound Navy Yard, Brementon, Wash.; and Major Sidney P. Spalding, III, Aberdeen Proving Ground, Md.

Among the score or more of Tech men whom I have seen here at the St. Moritz-on-the-Park during March were President Compton and his daughter, Bob Morse, VI, and Bill Orchard, I, the two latter each being accompanied by his wife and another couple for dinner and dancing. On the second day of spring Don Frazier's wife, just in New York on a flying trip to the opera from Richmond, Va., dropped in here to say hello and tell me that she and Don are fine and dandy and wish I could spend a week-end with them. Both here and at Douglas Hill in the summer these renewals of acquaintance are high spots in my enjoyable career as a hotel man.

One more issue to close this volume of class notes — but in this case there is a two months' interval between issues, so right now when you are reading these notes there is a time interval for you to write me a letter and still have your interesting news about yourself, your family, a classmate, or what have you, appear in the next, the July issue, of The Review. Are you writing? — ORVILLE B. DENISON, *Secretary*, St. Moritz-on-the-Park, 50 Central Park South, New York, N. Y. JOHN A. HERLIHY, *Assistant Secretary*, 587 Riverside Avenue, Malden, Mass.

1914

In order that the review editors may reduce their operating expenses and thereby lay claim for holding their jobs for another year, the wealth of information that is available for these notes will be withheld and published uncensored in *The Fourteen Pointer*, a publication unspoiled by advertising. One of the grandest feelings that can come to any class secretary is that of a plethora of material for Review notes.

Always an exponent of truth whenever it is stranger than fiction, circumstances require your humble secretary to say that the New York gang wins the honors this year. Unaided by an Alumni Dinner, they put on a party at the Technology Club of New York, on March 15, that will go down in the annals of class history. Dignified happiness but inadequately describes it. After proper condemnation of Buck Dorrance's food products, Tom Duffield's Tower of Health exercises, and similar frank discussions of the life work of those present, the meeting settled down to an enthusiastic discussion of how the Twenty-Year Reunion could best be conducted to bring out the maximum attendance. Good old Charlie Fiske gave a preview of several one-act dramas which he has worked up — and, mates, if you have no other reason for coming to the reunion, the trip is worth twice what it costs just to see Charlie in action. Those attending this most successful dinner, organized, run, and entertained by Charlie Fiske, were: H. A. Affel, R. F. Barratt, N. E. Brooks, H. N. Calver, R. H. Dickson, A. C. Dorrance, T. J. Duffield, L. D. Faunce, C. P. Fiske, C. E. Fox, D. F. Gould, O. C. Hall, J. W. Hines, J. Isaacs, A. W. Mudge, C. H. Ober, E. L. Osborne, P. B. Owen, W. H. Price, J. B. Reber, H. B. Richmond, F. S. Somerby, H. L. Stone, and R. V. Townend.

Now let's get down to a few notes which will not appear in detail in *The Fourteen Pointer*. First is the announcement that at the Annual Meeting of the Institute of Aeronautical Sciences Don Douglas was elected Vice-President, and Dinny Chatfield to the grade of Fellow.

Jim Reber made his exodus on Saint Patrick's Day for a trip through England, France, Germany, Austria, and Switzerland. In order to make certain that he will return in time for the reunion, Jim paid his sign-up deposit before sailing. Buck Dorrance completely rearranged his European plans and to make sure that he would be at the reunion has postponed his sailing until after the reunion.

Frank Somerby attended the New York Dinner with a broad grin. Why not? On February 25 he became the very proud father of a nine-pound girl. This is Frank's second daughter. — Charlie Fox has established his own printing business in New York. He has become official printer to the Class of 1914, but still has time for a few other accounts.

Welton Snow is with the Associated General Contractors, in Washington, as engineer and safety director. Snow had previously been in Los Angeles and when the opportunity came to come East he jumped in the faithful family bus and made the cross-country trip in six days. With such a record he certainly should be able to leave Washington Friday evening and have breakfast with us at Oyster Harbors Saturday morning.

Bob Townend has had a most interesting and varied experience during the past few years. After considerable urging he agreed to write your Secretary about it, and the letter is so interesting that it is being quoted verbatim instead of the usual method of annotation.

1914 Continued

". . . The last few years, like many others, I have been bumped around by the depression but fortunately have been lucky enough to have had some interesting experiences and to have landed on my feet.

"Some time ago I wrote you that I received my Ph.D. (in chemistry) from the Johns Hopkins University during the time while I was Professor of Chemistry at the University of Delaware. Following this I was Chemical Director and Assistant to the President of the Pilot Laboratories, Inc., who were interested in the development of new organic chemical products, but the depression came along and hit them pretty hard so I decided to join the research staff of the Calco Chemical Company. This lasted something over a year and I next landed in Savannah, Ga., for six months for research on rosin compounds.

"In July of 1932 my wife and I started for Europe on a trip partly for business and partly pleasure. We sailed from Montreal, spent a short time in England, and then toured through Belgium, Holland, western Germany, Switzerland, and France. In Brussels we got smashed up in an auto accident when a drunken taxi-driver ran into a traffic light at midnight. Some serious cuts and bruises resulted but they sewed us up in one of the hospitals and after a couple of days we continued the trip with some difficulty. In Germany and Switzerland, particularly, we got some rather good photographs which is one of my hobbies.

"In September, Mrs. Townend sailed for New York while I went to Berlin and spent several months working in the private laboratory of the Director of the Physikalisch-chemisches Institut of the University of Berlin. The work, which covered the mechanism of certain photochemical reactions in the ultraviolet, was difficult though fascinating. An account of the work was published later in Germany. During my stay there I lived with a German family and had an opportunity to learn considerable of the point of view of the common people. The comparison between France and Germany was very marked, for while the Germans were unusually friendly and did all in their power to make the Americans comfortable and the visit an enjoyable one, the French tried to 'gyp' us at almost every turn. From my experiences I have lost all sympathy for the French and any desire to visit France again.

"The time I spent in Germany was shortly before Hitler came into power. I know that many of the people there regretted some of the extreme acts which took place. I hold no brief for Hitler, but certain circumstances can be pointed out. Ever since 1918 the German people have had a hard time. There were the tremendous war losses, the heavy penalties of the treaty of Versailles, the period of inflation, and recently the world-wide depression. For the young people in particular, the situation was extremely difficult. They felt they were lorded over and dictated to by France; there was almost no opportunity of obtaining work of any kind; and for what work was available the compensation was very low. If a young man could get a position paying 50 marks a month (about $12) he was very lucky. Furthermore, following the war there was a large influx of Jews from the East — Russia and Poland — because of the better living conditions in Germany. Many Jews also held controlling positions in many of the large enterprises, such as the department stores, publishing houses, and even in the government. A natural resentment grew with the years, until Hitler, stirring the national patriotism and crushed ambitions by exaggerated promises, swept practically all the young people with him. In 1932 there were over 30 political parties in Germany, from the Communists on one extreme to the Nationalists on the other. As a result, the government could get nowhere and floundered around until the people turned to a dictatorship to get them out of their difficulties. Whether or not Hitler can achieve his ambition, no one can tell, but to date he has given the German people hope and inspired them to rebuild their nation. One of his principal aids told me personally that Hitler had a particularly friendly feeling for the Americans.

"Following my return to this country, I got a job in the research laboratories of the American Cyanamid Company working on urea resins until about a year ago when I became Technical Director (in charge of production, research, and so on) for William Zinsser and Company in New York City. This company is engaged in importing, bleaching, and manufacturing shellac, shellac varnish, as well as certain allied products. It is the oldest and financially the strongest company in this field in the country. As you may imagine, questions of manufacture, the NRA code, chemical problems, and so on have kept me more than busy. So you will have to accept this as an excuse for not writing you before."

Oyster Harbors, Cape Cod, June 9 and 10! — HAROLD B. RICHMOND, *Secretary*, 30 Swan Road, Winchester, Mass. GEORGE K. PERLEY, *Assistant Secretary*, 21 Vista Way, Port Washington, N. Y.

1915

As the flowers bloom in the spring; as a young man's fancy turns; as the sap runs in the saps; so write our classmates in the spring. After the dearth of news during the winter there now comes a deluge. First, from Clyde Mackenzie: "I have been located here in Chicago since the early part of July last year, in charge of Reed and Barton's Chicago office which caters to the demands of the trade throughout the Middle West. The family came West in October after a summer on Cape Cod, where Mrs. Mackenzie operates the Sunset Tea Room in Orleans. She and the two children are comfortably located here now but we are looking forward to the vacation season, which we hope to spend in Massachusetts."

Next, from away out on the Coast, Jerry Coldwell comes to life as loyal as ever: "What are you doing, running two establishments? Are you that good? I have two addresses for you: 40 St. Paul's Street, Brookline, Mass., and 72 Charles Street, Malden, Mass. Which is correct?

"I flew out here (Los Angeles) Sunday night and yesterday on a rush job but I don't expect to be here for more than ten days. Owing to the fact that we'll probably be working nights and week-ends with the lawyers and accountants, the chances of doing much bathing and that sort of thing are quite remote.

"I play bridge with I. B. McDaniel '16 now and then and at a tournament in which we played together, I met a 1915 man whose name right now slips my mind. He was at the 1915 dinner at the City Club two or three years ago and came in late with Hank Marion — both with an edge. It seems that his name is Charley Williams or something like that. He knew me as soon as he saw me. I guess I have one of the common faces that you see everywhere. I think he lives in Spuyten Dyvil." Jerry has a great time seeing America. I remember Charlie Williams and Hank Marion and our New York dinner and they were both very funny.

From Professor Locke's office comes a notice that M. F. Coolbaugh, President of the Colorado School of Mines, is one of the directors of the Colorado Industry Planning Board which has been organized to plan for the expenditure of Federal funds that may be loaned for the development of the mining industry in Colorado.

Jim Tobey, on whom I can always rely for help, writes: "Your plea for 1915 news coincided with a visit to my office from Ben Neal of Lockport, N. Y., and so I will pass on some information about this particular classmate. Ben is President of the Norton Company and at present is interested, among other things, in a small camera made of bakelite, which sells retail for 50¢. It is an excellent little device and I took a couple home to the offspring. Ben says he was a candidate for the Republican nomination for mayor in his city recently, but lost out by a few votes and a Democrat was elected. He is chairman of the local CWA, being alphabetically inclined as well as devoted to public service.

"I was in Boston yesterday but failed to find you listed in the 'phone book or should have called. My chief object in visiting your fair city was to attend a Roxbury Latin School alumni dinner in honor of my classmate, Bancroft Beatley, President of Simmons, and my near classmate, James B. Conant, President of Harvard. At the dinner, our old professor, C. Frank Allen, made a brief speech as the oldest graduate present. He was an R.L.S. man in the Class of 1868. Walter Littlefield '16, Wingate Rollins '18, and several other Tech men were present, although most of the 300 or so there had the misfortune to be Harvard men.

"Trusting that this will help fill up your column and hoping that others will indite epistles to you so that you will not even need to use it. . . ." Our classmate, Ben Neal, has grown to be quite a man in Lockport, N. Y. I've used one of

1915 Continued

Bennie's 39¢ cameras and they do a good job. Jim gives us all a great laugh with the reflection on the misfortune of his prep school friends who had to go to college a little farther up the river.

Wally Pike (of Cleverdon, Varney and Pike, consulting engineers, Boston) was in to see me recently. Although he complained of the lack of activity in engineering and building, he didn't show any of the effects of it, as he is without doubt one of the youngest looking men in the class (for his age and the size of his family).

I hope this will stir the rest of you boys to send in a few letters to maintain the revived interest in our class notes. — AZEL W. MACK. *Secretary*, 72 Charles Street, Malden, Mass.

1916

The Secretary has only regrets for this issue. Unfortunately he has not heard from any members of the class and has had no time to write seeking news. Next time he hopes for a long and newsy column. — HENRY B. SHEPARD, *Secretary*, 269 Highland Street, West Newton, Mass. CHARLES W. LOOMIS, *Assistant Secretary*, Bemis Bro. Bag Company, Memphis, Tenn.

1917

The NRA Code for class secretaries now under consideration provides for fewer issues of alumni publications and more notes from correspondents, but until the Code has been accepted, we shall probably carry on much as in the past, with long columns of miscellaneous data of occasional interest obtained by begging on the streets of New York by odd bits of cajolery or even on sundry occasion by threats approaching blackmail. I suppose we shall continue to draw rather heavily on clippings furnished by various news services and forwarded by The Review office.

After long experience with this collection of curious and miscellaneous gossip, I have come to have a hearty sympathy for the famous god who suffered a deluxe torture of having his punishment continued at rather regular intervals without hope of relief. Occasionally though there is a bit of relief as when I received such a letter as this from Stan Dunning, famous Sales Manager of the Muralo Company, "largest manufacturers of water paints in the world."

"For some time I've been meaning to get some class news off to you, so here goes: Last June Dad Wenzell had a very serious experience which he might be willing to elaborate on. He became ill from a bad fever which landed him in a hospital and baffled the doctors. The fever was something unusual. Finally, a certain specialist recognized the ailment and that Dad's chances weren't one in ten. By strenuous use of the 'bacteria-o-phage' treatment, which is still highly experimental, Dad's life was saved and his case became 'Exhibit A' at various Medical Society meetings last year.

"Walt Harrington is now located in New York with the *World Telegram* newspaper in charge of the department store advertising. — Dick Whitney also is in New York furthering the cause of McCall's *Red Book*.

"The young lady across the desk insists that I should mention some of my doings. She's usually right, so here goes: As Chairman of the Water Paint Manufacturers' Group, I was swung into plenty of code work on the now accepted code of the Paint, Varnish and Lacquer Industry. This landed me as one of the 48 members of the Paint Industry Recovery Board to administer the Code.

"Another piece of interesting outside work has been as President of the Mandis Society, comprised of paint and wallpaper manufacturers and affiliated with the International Society of Master Painters and Decorators. In addition, I am a member of the Executive Committee of the National Paint, Varnish and Lacquer Association, as well as of a similar local Association in New York City. That makes it sound as though I were busy, which is about so, for, combined with my sales activities throughout the United States, Canada, and considerable export, I've had about the busiest year I ever put in. Last fall in New York County I stood for election as a Republican County Committeeman and was elected, thereby contributing in a very minor way to the ultimate LaGuardia victory. This letter didn't start out as a self-boosting one, but, anyway, here it is. Best wishes and good luck to you."

Stan enclosed a clipping from a Charleston, S. C., paper describing a new $185,000 garbage incinerator soon to be erected in that city with the coöperation of the city administration and the CWA of the Federal government. Following a City Council meeting, the method of building and capacities of the incinerator were outlined by Harrison P. Eddy, Jr., of the firm of Metcalf and Eddy of Boston, which firm will have supervision of the construction with the expectation of completing the work by June. Building of the incinerator is expected to begin "a new day for Charleston" in the matter of disease prevention and — among other things — elimination of mosquitoes. This last seems to be of especial interest to the aforesaid Eddy, Jr., whose many and varied activities have been cited here so frequently as to draw a protest from that modest gentleman.

Major E. E. Aldrin, head of the Colonial Beacon Oil Company, also breaks into print with a reported statement that the chances for success of an ocean flight are all in favor of any one who attempts it, there being but a few simple little provisos, such as careful advance planning, skilled piloting, trained navigation, suitable airplanes, and close attention to scientifically prepared weather information. Major Aldrin bases his statement on a recently completed study of all transatlantic flights made and attempted since 1930: roughly, 85 successful journeys out of a total of 93, and only five out of the total lost at sea. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

Hear ye! Hear ye! A letter from Bob Van Kirk: "I have been associated with Penick and Ford Sales Company for the past three years, my work being in the industrial field, where our bulk products are used. These include starch, corn syrup, corn sugar, dextrine, and a number of other specialties developed to meet specific manufacturing needs. The corn products refining industry has weathered the depression in a manner which reflects very favorably on management policies. Our research department has developed some new types of starch products and part of my work is to find where these can be advantageously used in the industrial field.

"I am living in Chicago again (Evanston) after residing in Michigan for a number of years. There are three little Van Kirks, Alice, 7, Bobby, 4, and Mary, 1, so you can appreciate I am doing my part in overcoming any tendency there might be toward race extinction.

"I ran into Bill Wyer in St. Louis a month or so ago. Bill didn't recognize me. Perhaps the 50 pounds that I have put on since 1918 and the mustache which I have recently added to my physical attributes account for the evident change in my appearance.

"I am rather hoping to go East in June and, if I do, plan to spend a few days in Boston. It has been seven years since I was 'back at Tech' and I am getting hungry for a renewal of contact with the ology varsity shop."

H. V. Sturtevant allows as how old man Depression took a swat at him as well as at three other '18 men. But for ah that, sez he, "I am still running the Anthracite Machinery Company in Scranton, which is principally engaged in installing automatic coal burners and heating equipment. We find it a very interesting job. It has possibilities that look good. I get to Boston about once a year, usually during the summer, and plan to call on you some time next June or July." (Better make it early June, Harold, or I'll be hidden away in the woods studying — yes *studying* — for next year's courses.)

Is there a one of us whose frolic fancy has not romanced over the life of a railroad man? But we became oil salesmen instead; no not quite all. There's Harold Fitch. Remember the day when that gallant captain had his company do a neat "column right" around a grass plot, but cut cross lots himself? Then he said, "You've got to be an officer to do that!" Said it with a smile that made everybody love it. Well, Harold is part of the oldest operating railway company in the western hemisphere. It was founded by William and Maurice Wurts, Philadelphia merchants who discovered anthracite deposits in the Lackawanna valley and acquired the property to supply the shortage when the War of 1812 cut off the supply of British coal. In 1828 the company borrowed $800,000 from the State of New York, part of which was used to purchase the *Stourbridge Lion*, first

1918 Continued

locomotive to run on American rails. Gentlemen, Mr. Fitch of the Delaware and Hudson Railroad:

"Read so much about vice-presidents in the 1918 news that I figured the 'New Haven' done me wrong when they didn't make me one after nearly a decade of faithful servitude. So, in December 1928, I hauled my freight and landed on the Delaware and Hudson, for which I am truly thankful, as I am now over the vice-president, he being on the eighth floor while I am on the ninth.

"Have given up running locomotives for the less spectacular work of running a typewriter. We get out three employee publications in addition to various 'confidential' stuff for the newspapers. (I'm sending some 'samples' under separate cover.) Next time your path leads through Albany drop in and I'll give you all the gruesome details, much of which have to do with the artful manipulation of scissors and paste as a means of avoiding mental strain.

"Albany seems to be off the 1918 track. I can't remember seeing any of the old gang since I ran into Stan Cummings at an A.S.M.E. meeting a couple of years ago. He is refrigeration expert for the Hoover vacuum cleaner outfit.

"As to vital statistics, Barbara is now eight and David is nearly two years old, and it was six below zero here this morning, which is quite balmy for this 'good, old-fashioned winter.'

"Now that the 'moving finger' has written all this, it has a blister on the end, so I'll say *au revoir* while you respond with a loud *Aufwiedersehen.*"

From the office of the director of research for the Revere Copper and Brass outfit at Rome, N. Y., comes the signature of R. A. Wilkins beneath this cordial greeting: "I would be more than happy to see any of the '18 boys who happen to be passing through this territory. Since the advent of repeal I have been able to lay down a cellar which would afford such visitors a variety of choice, and, of course, for those who do not choose, there is an abundant supply of spring water.

"I spend considerable of my time ambling about the country, as the various divisions of the company are scattered hither and yon about the landscape. I have come out of the depression broke, but still eating three meals a day and, what is more remarkable, still being able to supply sufficient and adequate food for one large and boisterous 12-year-old son, who, together with a wife and bull dog, constitutes my entire family. I expect to take a business trip to England in the spring and will send you a picture post card from there."

Righto old top, but please restrain yourself better than I did last summer. My stenographer got a postal from Niagara. The message read: "These are the falls over which the Indians annually sent the most beautiful damsel in the tribe — wish you were here."

E. R. (Pete) Harrall reports son Richard Franklin Harrall has now topped the one-year mark. Pete also reports that though it hurt awfully, he, as Treasurer, has paid all current class bills. — As for the Secretary, his oldest son now wears *long* trousers and has already decided on Course XVI. — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

Buck Clark gave me a surprise visit a few days ago. He is with the investment house of Putnam and Company at Hartford and is now making his home at Farmington, Conn. Contrary to most of the members of the Class whom I run across, Buck seems to be getting thinner rather than stouter. For the benefit of the Class, he ought to tell us how to do it.

I received a very charming note from Mrs. Henry Willard Hills just in time to miss the last Review. Mrs. Hills said that she felt a Class Secretary ought to have some coöperation, so inasmuch as her husband wouldn't come across, she was going to do it for him. If there are any other wives who read these Class Notes, I certainly wish they would take the hint. For the past three years Hills has been with the Consolidated Gas, Electric Light and Power Company of Baltimore as Supervisor of Promotion of Domestic Electric Sales. A son, Willard Andrew Hills, arrived on January 28. Mrs. Hills advises us to watch for him in the Class of 1955. The Hills are residing at 3409 Parkside Drive, Baltimore.

Robert H. Aborn of Course III is now Dr. Aborn of Short Hills, N. J. Harold Bennett is in Denver, Colo., address 5072 Tennyson Street. Lary Boyden has been located at 1442 Scott Avenue, Winnetka, Ill. Irving Brown has left Cincinnati and is now in Marion, Ohio. Reg Burr is with McGraw-Hill Publishing Company at their St. Louis office. Charlie Carleton has moved to East Bound Brook, N. J. Harmon Deal is living at 325 Ashbourne Road, Elkins Park, Pa. Foster Doane is now in Pittsburgh, address 11 Rosemont Avenue. John Downey of Course I has left Boston for Sandy Spring, Md. Herb Federhen is living at 56 Evans Street, Watertown, Mass. Grant French is in Chicago, address 1844 West 105th Street. Jim Harrop is in Bay Town, Texas. Johnnie Herron is in Long Beach, Calif. Bill McKay is at St. John, N. B., address 100 Spring Street. G. R. McNear has come back from Chicago and is now at 70 Athelstane Road, Newton Centre. Tom Orchard may now be reached at 291 Westminster Street, Providence. Grafton Owens is in Columbus, Ohio, 292 Wyandotte Avenue. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

Our Boston correspondent, Chick Kurth, finds respite from his snow shoveling to make use of a pause between pedagogical pilgrimages and record recent news from the Home Office. Chick is now Acting Assistant Chief System Operator for the Edison Electric Illuminating Company of Boston when he isn't engaged in repulsing snowdrifts or traveling around the Commonwealth, under the auspices of the Division of University Extension, in the interest of public enlightenment. We, too, wonder if he has time to visit the Mrs. and those two fine boys and two little girls at 8 Healey Street, Cambridge.

Says Chick: "Went to the Alumni Dinner and saw quite a few of the boys, although I probably missed some who sat away from 1921 tables. Everybody was much too jovial for me to get much information. However, here is my list of those present and some news about them: Carl A. Ellis, Associated Factory Mutual Fire Insurance Companies, 184 High Street, Boston. — Albert Calvert, C. H. Tenney and Company, Boston. — Royal Wood, Accountant with Lybrand, Ross Brothers and Montgomery, 80 Federal Street, Boston. — John B. Mattson, lawyer, with Peters, Clark and Keating, 1 Federal Street, Boston. — Larcom Randall (of *Saturday Evening Post* fame), with T. O. Metcalf Company, printers. — Charles A. Williams, Manager, Commercial and Industrial Department, C. H. Tenney and Company, 200 Devonshire Street, Boston. — Donald H. Hatheway, Edison Electric Illuminating Company of Boston, 39 Boylston Street. Don now has a fine daughter. — William C. Kohl, Manager, Century Electric Company, 10 High Street, Boston. — Melvin R. Jenney, patent lawyer, partner in firm of Van Everen, Fish, Hildreth and Cary, 53 State Street, Boston. — Richard McKay, with E. A. Pierce and Company, 45 Milk Street, Boston. — Harry Rosenfield, General Manager, National Laundry Company, 1208 Dorchester Avenue, Dorchester. — Frederick F. Olson, methods engineer, Hood Rubber Company, Watertown. — J. D. Crosby, technical supervisor, Hood Rubber Company, Watertown. — Garvin Bawden — no further news of Mich. — Edward Scripps Booth, manager, Industrial and Marine Fuel Oil Division, Cities Service Refining Company, Boston. — Professor F. W. Adams, Department of Chemical Engineering, M.I.T. — Arnold C. Rood, patent lawyer, United Shoe Machinery Corporation. — Jack Whipple, Department of Aeronautical Engineering, M.I.T. — J. G. Kaufman, President, Union Electric Supply Company, 173 Harvard Avenue, Allston. — Professor V. O. Homerberg, Department of Mining Engineering and Metallurgy, M.I.T. — P. A. Nelles, Jr., C. H. Tenney and Company, Boston. — Wallace C. Norling, Stone and Webster, Boston. — A. L. Edson, Manager, Boston Airport.

"I understand John E. Buckley, Jr., is with the Massachusetts Department of Public Utilities with headquarters at the State House, Boston. Also hear Hartwell Flemming is now with New England Gas and Electric Association in Cambridge and is living in Arlington."

We note that a 1921 table occupies the foreground of a picture of the 1933 Alumni Dinner in Dr. Compton's beautiful booklet of "Educational Opportuni-

1921 Continued

ties" at the Institute. Our demon banquet attender and Boston correspondent exhibits his best reportorial look as he awaits the soup and devises strategy to make the others talk for these columns. From Chick's report of the affair last year and our own guesswork on the thinning thatch of those whose backs are turned, the others are: E. T. Adams, Rood, Pelkus, Johnson, Rosenfield and Britton, Burnham and Moy-Ding of 1920.

Unfortunately we missed seeing Professor O. G. C. Dahl of the Institute's Department of Electrical Engineering, at the winter convention of the American Institute of Electrical Engineers in New York. His comment on one of the papers is published in the March issue of *Electrical Engineering*.

We enjoyed a pleasant visit and evening of bridge with the Maxwell K. Burcketts recently. Max is in export manufacturing with the Vick Chemical Company, 122 East 42nd St., New York. He has become a near neighbor of ours by moving to 68 Oakview Avenue, Maplewood, N. J. Pretty little Phyllis Edna is now four and a half years old.

Driving to visit the undersigned would be a fine way to bring your news but, of course, a letter or even a post card will be welcomed. Better half an effort that way than a constant loaf! — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1922

After an absence from The Review for a number of months, we are glad to report a number of happenings of interest to members of the Class. Hy Rosengard writes from his home at 85 American Legion Highway in Dorchester of the arrival of a son, Donald Leo, born on January 31. Hy is in the contracting business in Boston, and sends his honest-to-goodness regards to all members of the Class.

From Professor Locke's office we learn that Jim Kinnear has been elected a director of the Firth-Sterling Steel Company. — The appointment of Fred Guerin as Professor of Inorganic Chemistry at Boston College has been announced. — All members of the class will learn with regret of the death of Herbert Cobb, and will join in extending their sympathy to his parents.

Joe Givner is now assistant to the Vice-President of Sears, Roebuck, in charge of Eastern buying, making his headquarters in New York. — From La Crosse, Wis., we learn of the marriage of Harriet Lillian Kroner to Julius Werra. — Another recent marriage is that of Helen Louise DeVoe of Dorchester to Jim McDonald. — From Charleston, W. Va., the announcement is received of the marriage of Gerial Lee Lewis to Holden Dougherty.

And not to be outdone, John Bower, who is in Montevideo, Uruguay, sends us an announcement of his marriage to Lillian Keithen Fenn. — Mal Fisher sends the good news that a recent operation has resulted in his being well on the road to good health, and that he hopes this spring to be able to resume normal living again. He sends best wishes to all members of the class. — With this interesting number of very brief reports of recent happenings to so many of our old friends, your Secretary closes with the hope that it will be possible to have many notes to report in the near future. — RAYMOND C. RUNDLETT, *Secretary*, Curtis Publishing Company, Lincoln Building, 42nd Street, New York, N. Y.

1923

In the November Review we recorded the appointment of George Barnes, I, to the Head of the Civil Engineering Department of the Case School of Applied Science at Cleveland. He was recently designated as Regional Supervisor for the extension of U. S. Coast and Geodetic Survey work in Northeastern Ohio through a PWA-CWA project. The program will supplement the basic triangulation and level circuits of the government. One of the principal tasks is to establish bench marks in pairs for approximately each ten square miles of area and to connect these points with the first order triangulation by means of secondary traverses.

John W. W. Sullivan, III, writes that he is with the Air Conditioning Division of the Frigidaire Sales Corporation of New England, and comments, "The air-conditioning industries have a bright future. The consensus of opinion seems to be that this field will break wide open about 1936, but that progress will be rather slow this year and next."

L. V. Goriansky, IV, writes that he has just got an A.M. degree from Harvard, is engaged in writing, and that one of his books has recently sold out its first edition. — Raymond Starr, X-B, who is sales manager of the Koch Butchers' Supply Company, of North Kansas City, Mo., has recently been elected to the commercial refrigerator code authority.

In response to my request for an accounting for himself, I got a pretty complete story from Joe Fleischer, VI. After graduation he filled a number of jobs, including draftsman work for Stone and Webster, inventory work with the N. E. Tel. and Tel. Company, and as design engineer with the Duquesne Power and Light Company, in Pittsburgh. This was up to 1925, at which time he married a Boston girl and took up residence in Pittsburgh. For the years 1927 and 1928 he was assistant electrical engineer with the Atmospheric Nitrogen Corporation, in Syracuse, N. Y. On finding that to continue with the American Nitrogen Corporation would mean moving to Hopewell, Va., he decided to return to Boston and bought an interest in the allied enterprises of which he is manager; namely, the Astor Window Cleaning Company, the Astor Painting Company, the Astor Cleaning Company, and the Astor Exterminator Company. It was on the letterhead of the latter enterprise that he wrote me, which suggests that his saying that the work is "interesting and diversified" may be in the nature of an understatement. Joe has one son, born in March, 1930.

William A. Peabody, II, says he's hazy as to what information he last furnished about himself, but submits the following: "1929–1932, Associate in Chemistry, Medical College of Virginia, Richmond. Married, 1930, to Miss Alice M. MacKay, Richmond. Since leaving the college have been and now am employed as biochemist for the Valentine's Meat-Juice Company of Richmond." — Howard L. Cobb, XIV, is an electro-chemical engineer, and is now with the Aircraft Radio Corporation of Boonton, N. J., where he also resides.

A nice newsy note came from Jerry Fitzgerald, VII, in response to my inquiry on a recent address change. He says: "Merely transferred from the Birdseye Laboratories, Gloucester, to the central laboratory, Frosted Foods Sales Corporation, Boston. It consisted of a boost from Research Chemist, to Chemist-in-Charge. Stuart P. MacDonald, X, is with me. We chemists are not only the watchdogs of quality the year round, but in the summer we are located in the field to control the quality of products as packed. It means five months at field stations and seven months in Boston. Field work starts in the South May 1, and finishes in New York and Oregon about October 1. Have annexed a wife and two sons in the past few years, so such globe-trotting has its drawbacks."

Major Robert M. Carswell, C.A.C., comments that in line with the routine of the army he has moved around a lot since 1923. He writes: "Left Boston in '23 and went to the Philippines. Returned to U. S. early in 1926 and went to Delaware as instructor for the Delaware National Guard. Remained there until June, 1929, when I went to Panama for duty as artillery engineer and ordnance officer of the harbor defenses. Returned to the U. S. in July, 1931, for duty at the Coast Artillery School, Fort Monroe, Va., as student in the advanced course; graduated June, 1932, and was sent to Richmond, Va., where I am now stationed as instructor for coast artillery reserve officers. Since June, 1933, I have also been on duty with the CCC, supervising a Sub-District containing ten CCC camps."

Ferg (Hugh S. Ferguson, XV, who is with the Dewey and Almy Chemical Company of North Cambridge) is the father of a second son which arrived within the last few months, a fact which I regret I am late in reporting. — Bunny Kingsley, XV, reports that he has moved to a place "more or less out in the country where we could have more ground and room to roam around." He is with the Los Angeles Soap Company. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1924

I am going to confine my preliminary remarks this month entirely to the reunion. It is that important. The days

1924 Continued

to save, in case you haven't heard or in case they have slipped your mind, are Friday to Sunday, June 1 to 3. For those starting from New York, it can be stretched another day, as there will again be a boat ride starting Thursday evening for those who want to go to Boston that way.

The opening gun will be officially fired Friday noon with the first luncheon. This will be in Walker Memorial and will be preceded in the morning by registration. From then on the program of five years ago will be followed very closely. The early afternoon will be available for inspection of the Institute and renewal of acquaintances. The Class is most fortunate in that President and Mrs. Compton extend to the Class of 1924 "our cordial invitation to meet for tea at the President's house on Friday, June 1, between four and six o'clock." In the early evening we will embark for a secluded spot for dinner and "ye old fashioned bull session," in the words of Bill Correale. Saturday there will be golf, tennis, horseshoes, water sports, elbow bending, perhaps even baseball — all to be followed in the evening by the official reunion banquet. At this time the class movies will be shown. Sunday will be relatively simple in program. Sleep if you wish, breakfast, and sad "adieus." If you haven't registered with Greg Shea for all this, by all means wait no longer but send your $2.00 and your name to him at 393 Seventh Avenue, New York. Apropos of this, I shall add the following comments from the same Greg.

"Same thing only more of it," says John Henninger in answering the question on his reunion registration blank as to what he is doing. He adds, "I expect to fly up in my newly acquired airplane." What manner of business is this, you ask? Sorry, but that will only be told at the reunion. We heard, John, that there was some trouble in those steel towns, but, well, congratulations.

Robert Siskind is proffing at Harvard and still trying to beat L. E. Fogg at golf. Paul Cardinal may still be the old lounger but no lounge lizard can raise children the way he does, say we. Paul says there's lots of humor left in the old dog.

The returns reveal a large variety of occupations and just plain jobs, and the attendance promises to be quite a bit larger than in 1929. Aside from those mentioned above a large number intend to come and have signified their desire to me (still H. Gregory Shea doing the talking) at 393 Seventh Avenue, New York, Room 1705. Plans are developing fast and there'll be a regular old-time elbow bending, singing jollification. — H. G. DONOVAN, *General Secretary*, 372 West Preston Street, Hartford, Conn.

COURSE XIII

Starting with the day notes were due in January, for four consecutive days something of "news value" occurred. First, Jim Lord, whom I have not seen since 1924, dropped into my office after having chased around Boston to locate me. Jim was around Boston just for the day. He was on his first vacation for three years and I certainly enjoyed the few minutes' chat and also the opportunity to meet Mrs. Lord. Jim is located in Russellville, Ala., R.F.D. No. 3, where he is assistant in charge of a limestone quarry. While Jim was at my office, we tried to get in touch by telephone with a few of the Course XIII fellows. We tried Ed Russell in Providence, but missed him. It produced a call from Ed, however, the next day and that is news as well. Ed is with the Telephone Company in Providence, R. I. He is the one real soldier in Course XIII, having been elevated to a Captaincy, and is very active in Reserve Officers circles in and around Providence.

I, perhaps, will have to take back my above statement about Ed being the real soldier, for the day following I received a letter from Frenchy Rosseau in which he says in part: "I went into active duty with the U. S. Army. I have had many enjoyable experiences in this service — am assigned to the CCC Camps. My first job was to build winter quarters in Mississippi for one of the Northern Units. As the people were particularly hospitable and interesting, and the country entirely different from any I had ever seen, this work was fun. Since then I have been transferred to a Southern Camp in the wilds of Alabama." Frenchy writes from Camp Baldwin, Bay Minette, Ala.

The next event was most important to me, as my second daughter, Elsa Joyce, was born on January 24. So you see it was rather a full and interesting week.

I see and hear from Fred Ashworth, Elliott Thayer, and Guild Holt regularly. Fred is with Merriman Brothers, who specialize in yacht fittings, and lives in Squantum. It was at Fred's home last summer that I last saw Guild Holt. We were both down to enjoy a sail with Ashworth in his "O" boat. Holt is still with the National Biscuit Company in New York, and lives in West Nyack. Guild brought news from Frank Hanley who is also located there with a power company, the name of which slips my mind for the moment. El Thayer is still at Fore River and living in Weymouth.

My other item of news you probably heard about from several sources, and that was the Alumni Banquet on February 17, 1934. I must admit this was the first one I have attended, but I don't intend to miss many more. It was a wonderful evening. 'Twenty-Four was represented by George Glennie, Carl Muckenhoupt, Lafayette Quirin, Harold Hazen, Don Moore, Ruben Klainer, E. Thayer, Fred Ashworth, Raymond Lehrer, Elmer Brugmann, El Kallander, Del Kendall, and yours truly. Brugmann gave us some idea of the plans for the reunion and there was plenty of interest evidenced in it by the crowd that night. Not many of us have sent in the $2.00 yet, but our intentions are good. Course XIII was quite proud to have three representatives there out of the 13 present, and we plan to be out in good numbers around June 1. — GORDON C. JOYCE, *Secretary*, 26 Garland Street, Melrose, Mass.

1925

Your Assistant Secretary received a surprise visit the other day from Bob Hatton, X-B, who is living now in Shawsheen (North Andover), Mass. He is married, and has one son, Bob, Jr. In addition, he supplied information about a number of members of the class. Phil Glasson, he said, is working for the Brown Company at Berlin, N. H., is married, and has two small daughters, whose names he did not know. — Art Brockelman is President of the Brockelman Stores, a firm founded by his father, and having a number of stores in Lawrence, Mass., and the surrounding territory. He, too, is married, and has a son. Some of the others he mentioned he had not seen recently enough to be sure the information was up-to-date, so we are not giving it at present.

Ken Lucas, Secretary of Course I, dropped in a short while ago. He had no "organized" news, but reported seeing in a newspaper picture of a group connected with the Technology meteorological experiments with pilot balloons in the West the likeness of Christos Harmantas, whom many of us recall as the chap who could give you an electrical shock by allowing you to touch two different parts of his body at the same time. (See March Review, pages 229 and 231.)

On February 11, according to the Boston *Herald*, the betrothal was announced of Miss Ruth Wheelwright of Boston to Joseph Helling, who was a member of Course IV during the earlier years of our Class.

The following item came to us from Professor Magoun, Secretary of 1918, who received it in a letter from Ray Miller:

"Albert M. MacCleery married Inez May Klahn on December 22, 1933. Address American Bureau of Shipping, 660 Rockefeller Building, Cleveland, Ohio." MacCleery was a Course XIII man.

We dropped into a shoe store in Boston a while ago, and found the manager to be Louis Seigel, XV_2. He married Lillian White several years ago, and is now living in Brookline. He remarked in the course of an extended conversation: "I remember you because when I used to see you at Tech you always needed a hair cut."

In talking with Chet Trask XV_2, the other day, he said that he saw Doug Martin last Christmas. He was formerly connected with the Sullivan Machinery Company, but has now been for some time with the sales force of the Air Compressor Division of Chrysler Motors, and has an important position with them. Chet said that he saw many of the XV_2 men frequently, and would have a good bunch of news about them in time for the July issue of The Review. — HOLLIS F. WARE, *Acting Secretary*, 16 Smith Avenue, Reading, Mass. HENRY V. CUNNINGHAM, JR., *Secretary*, Boston, Mass.

1926

Promissory Notes. — The engagement of Miss Elizabeth Burtnett of Bronxville to Ariel Francis Horle has been announced.

1926 Continued

Miss Burtnett, a faculty member of the Lucy Paxton school for girls in Stamford, Conn., is a direct descendant of Roger Williams and of Guiliam Bertholf, first pastor of the Old Dutch Church in Sleepy Hollow, Tarrytown, N. Y. — The engagement of Miss Emily Lawrence Coyle to William Hagerman Graves was announced on March 31. The '26 miners are striking gold these days. — The engagement of Miss Caroline Fowler of Pembroke, N. H., to George Breck was announced last December.

Congratulatory Note. — The Boston Society of Civil Engineers has awarded to Bud Wilbur its Designers Section prize for the most outstanding paper presented before this Section during the past year. The subject of Bud's paper was "A New Method of Analyzing Stresses Due to Lateral Forces in Building Frames." Bud is one of our most promising civil engineers and is a member of the staff of the Civil Engineering Department.

Personal Encounters. — Chippy Chase, who entered the garment-making trade by first studying chemistry and then becoming a banker, had lunch with your Secretary the latter part of March. He has been with a knitting concern with plants in Manchester, N. H., and New York City. — Donald King, who shares with the Secretary the same first two letters in his name, was at the Institute recently searching for promising seniors in behalf of his company, the Carbide and Carbon Chemicals Corporation. Don is in the production department. — Phil Richardson teaches biology at Simmons College, and your Secretary recently saw him at that institution playing ping-pong. It was noticed that his name headed the list of contenders in the Simmons ping-pong tournament (for gentlemen members of the staff).

E. G. Bromilow, sometime Tech Show *ingenu*, lately emerged from that obscure murk in which so many '26 men have lost themselves since graduation. Communication has been received from him from Manila, P. I. He is with the General Electric Appliance Corporation of the Philippines and seems to be prospering. — J. RHYNE KILLIAN, Jr., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1927

Glenn Jackson has sent in a very newsy letter for which we are most grateful, as it is more modern than some of the ancient history we have had to "dish" out to you so far. Glenn, by the way, is at 59 Cottage Street, Pawtucket, R. I., and here is what he has to tell us: "Wheaton Hutchison has been making a fine name for himself with du Pont dyestuff and is now selling their 'fine chemicals.' He was in Providence all winter and Betty and I saw Wheat and Marie quite often. In fact the four of us yelled our lungs out at the Tech-Brown hockey match one night.

"I hear from George Houston quite regularly and I am trying to convince him that he should send his two-year-old daughter to Tech when she becomes of age. He is still interested with his Dad in industrial real estate around Newark.

"Fred Glantzberg, who we will all remember as a daring aviator at Langley Field in 1926, stayed with the Army Air Corps after graduation. In 1932 (January, I believe) he was seriously injured in a crash at Manila, P. I. I read about it in the N. Y. *Times*, so dropped him a line. He answered immediately, saying he was pulling through O.K.; also that he was married, and added further political notes about Philippine independence. I should write him again but do not know where he is now.

"John Collins is living in Cranford, N. J., is working for the Standard Oil Company of New Jersey, and, as further accomplishment, has taken unto himself a grand wife and begot a swell son. (Write in some news about the '27 men that are with Standard Oil, will you, Johnny?)

"The fact has never been published that the 1932 reunion at Plymouth, Mass., was a very gala occasion. Even Sid Blandford and Frank Mesker drove all the way from St. Louis, and when those two padres come out of the Golden West there are bound to be 'big doings.'

"Since I have lived in Rhode Island a year, this may be old news, but when I last saw them in New York in 1932, Dave Rosenthal (Rosy, to you) was working for a commercial photographer; K. A. Smith, a construction company; and Ike Stephenson for Pratt and Whitney in Hartford. — Louis Stetson has been making a name for himself designing stage scenery for New York's greatest musical comedies. Stet is married and has two children.

"Carl Davies writes that he has just purchased a shooting and fishing preserve outside of Charlestown, S. C. Sam Marshall, I understand, is a consulting engineer in Texas and does all his traveling by plane. Bob Bigelow is still with United Shoe Machinery in Boston and Ray Leonard is making the natives of that town like Pittsburgh Coal. . . ."

Don Spitzli, Secretary for Course X, has responded with some news and he has brought us up to date on the fact that Pub Whittier has left Congoleum Nairn and transferred allegiance to the Illinois Glass Company, and is now living in Toledo, Ohio. Don is unable to tell us what Pub will do in his new job. Don had a letter from Tom Barker stating that he is with the Research Department of the American Tar Products Company working at the Mellon Institute as an assistant fellow. I used to see Tom occasionally when I was living in Pittsburgh. At that time he was traveling all over the country for American Tar Products Company doing technical research in development work. Don is still with the Research Department of Congoleum Nairn of Kearny, N. J., and he has called our attention to an error in his address. He lives at 732 Elm Street, Arlington, N. J., not Arlington, Massachusetts, as previously noted. Don further states that just as soon as the boys coöperate sufficiently to give him enough notes for a separate Course X column, he will be more than pleased to carry on his job as course secretary.

On a recent trip to my Providence office, your Assistant Secretary walked into Harold Creedon doing his best to sell one of our men on the value of doing business with the Seaboard Construction Company. They specialize in marine engineering and are doing quite well. Harold and his brother, it seems, took this company over some time ago and they are in the process of building up a substantial business. Harold looks just the same, possibly due to the fact that he is still single and does not have the worries and responsibilities that some of the rest of us have.

We also note a change in address for Leonard Riley and he now may be located c/o Dr. B. F. Riley, 121 Whitney Avenue, New Haven, Conn.

Tom Knowles was in Boston a short time ago for Goodrich attending a meteorological convention. Tom called on the 'phone the night he was leaving so we were unable to get together. We asked him to write Dave Knox and give him any news he may have. We also picked up the news elsewhere that Tom took a trip across the Atlantic on the Graf Zeppelin for Goodrich. We are sure we all would be interested if Tom would write and tell us a little bit about this trip.

Up to the present time we cannot brag about 100% coöperation on the part of class secretaries or the ordinary "garden variety" of class member from which I so recently graduated. For instance, Danny Metzger used to be a swell letter-writer but we have not heard from him for a long time. Perhaps this little hint will bring forth something from Danny. Let's get this ball rolling!!

Charlie Frank, VI, after spending a few years at General Electric and at R.C.A.-Victor in Camden, N. J., is back at the Institute doing research. The measurement of short-time intervals is his specialty, and he developed an instrument for measuring elapsed time that has got him into the clutches of the feature-story writers of the metropolitan press. The idea was summarized in the March Review, page 232. Charlie started out to develop a means for measuring automobile speeds, probably with the idea of setting up as a consulting engineer to the speed-trap industry. He was getting along nicely, had the time-measuring device perfected, when along came the need of CWA for projects on which unemployed engineers could work. The original work was stopped and Charlie developed apparatus for measuring the reaction time of automobile drivers under conditions approaching normal road conditions.

His method involved two cars; one containing the CWA observers and the timing gear; the other for the victim under test plus a radio transmitter for telling the observers when the victim reacted. The victim's car would follow the observer's car, and, when the observer put on his brake, lighting his stop light, the victim was to apply his brake. Applying the brake in the observation car started the timing, a radio pulse from the car behind stopped it, and a meter

1927 Continued

deflection gave a number of milliamperes that the CWA folks translated into seconds with the help of Charlie's calibration charts. This answer, corrected for the time it takes the stop light to come to full brilliancy, is the victim's reaction time. We cite this to show the thoroughness of the study.

But CWA is about washed up and Charlie is back measuring automobile speeds. The only sad part about this is that, so far, the all-powerful head of the Registry of Motor Vehicles for the Commonwealth of Massachusetts hasn't been willing to give Charlie's scientific traffic measuring methods a try. Charlie has hopes.

Second-hand reports from New York place Howard Chinn, VI-C, in a responsible position in the head office of the Columbia Broadcasting System. — JOHN CRAWFORD, *Secretary*, General Radio Company, Cambridge, Mass. RAYMOND F. HIBBERT, *Assistant Secretary*, Koppers Products Company, 250 Stuart Street, Room 703, Boston, Mass.

1928

February 17 proved to be a very big day in '28 history, for in addition to being the date of the Home-Coming Dinner for all Technology alumni, it was also the occasion of a very enthusiastic class get-together. The apartment of your Secretary, number 537 at 420 Memorial Drive, Cambridge, was the first meeting place and the gang kept coming in until about 25 fellows were jammed into what before had always seemed to be a fairly good-sized suite. That evening the group had to overflow into the hall and kitchen where Al DeBaggis, our very efficient class mixer and mascot (by popular election), was supplying the refreshments faster than the group could ask for them.

Shortly after 6 P.M., the group assembled on the walk in front of the apartment building, where they were joined by a three-piece band which, up to that time, had been serenading the apartments for change. The ever-alert Ralph T. seized upon the possibilities of this situation and hired the horn blowers who turned out to be "Volunteers of America," which is somewhat similar to the Salvation Army. The men removed their special caps, put on felt hats, and led a loud-singing '28 snake dance procession in lock step right down Memorial Drive and up the steps of Walker, through the jammed reception hall, and into the East Lounge. At that point the band was paid off and a rousing cheer given for the Class.

Our class tables at the banquet were under the balcony, but we did manage to establish our presence in the customary manner. Twenty-seven members of the Class were present, which gave us the second largest attendance and entitled us to have our banner swinging in one of the two front positions. The following fellows were present: Ralph Jope, Jim Donovan, Al Knight, Jim Allan, Paul Martini, Mac McCarthy, Hank Hartwell, Rudolf Slayter, Joe Guertin, Kent (Benny) Hough, Henry Buntschuh, Moon DeCamp, Bob Harris, Waldo Keyes, Joe Parks, Bill Kirk, Dave Mattoff, Charlie Worthen, George Bernat, H. C. Needle, Gordon Collins, Slim Maeser, Moe Wolf, David Olken, Johnnie Kolligian, Tom Larson, and yours truly.

We wish to congratulate our President, Ralph Jope, on his election to the Board of Governors of the University Club in Boston. This is an unusual honor for one without benefit of mustache, beard, or steel-gray locks.

From Board of Governors we jump to the Elmira Reformatory at Elmira, N. Y., where Ronald Hutchings is teaching. Ron studied Sanitary Engineering which all goes to prove we're versatile.

I have before me a four-column by ten-inch picture from one of the largest Boston papers which has the caption "Among Society's Most Fêted Engaged Couples." Below the picture are the names of George Muir and Miss Anne Davidson with a few remarks about their forthcoming marriage. Congratulations from the Class.

The marriage of A. W. (Bill) Erickson, of crew fame, to Miss Louise F. Paine of Weston occurred on January 19 in that town. We extend our heartiest best wishes to the new partnership which is now located at 15 Hardy Road in Swampscott. — GEORGE I. CHATFIELD, *General Secretary*, 5 Alben Street, Winchester, Mass.

N.B. "We need a little more heart interest in this column." Thus concluded our noble scribe in his class notes for March. Could this epilogue by any chance have been a *beau geste* to break the news gently to the rest of us? Be that as it may, George Irving has stepped forward as a willing sacrifice on the altar of the great goddess Venus. The engagement announcement, or was it just a confirmation of our suspicions, took place at a tea on March 25 given by Mr. and Mrs. John Edmunds Walters of East Lynn, Mass., for their daughter, Marie, and our own Chat.

Hearty congratulations are due both of them. Yes, I say both, for all of you fellows know what a "catch" George really is, and I for one can vouch that Marie holds the scales of high values at an even balance. In case any of you dyed-in-the-wool bachelors doubt the word of a married man, may I refer you to the champion golfer of the Class, Joe Parks, his second, Bo-Peep Kirk, and to Mahatma's ambassador to the United States, B. Kent Hough, Jr.

Incidentally, Marie is an excellent typist, and although her work has remained in obscurity thus far, you have already profited from her altruistic interests in the welfare of '28 notes. May the good work continue! — RALPH T. JOPE, Room 11-203, M.I.T., Cambridge, Mass.

1929

Spring ought to bring forth thoughts of travel in many minds and what better plan could be proposed for a trip than a reunion and vacation in Boston early in June? We have just received quotations from Toy Town Tavern in Winchendon, Mass., and it hardly looks as though we can find a better proposition anywhere. Last summer the Class of 1928 had their Five-Year Reunion there and, according to their stories, it's a grand place to spend a week-end.

It has a fine golf course, swimming pool, beer, swell meals, and first-class lodgings. The total cost to the Class of 1928 was $12.83 per man for the week-end. They left Boston on special buses at 9:00 A.M. Saturday and returned Sunday at 5:00 P.M. They reported a grand time.

Naturally prices should be up this year, with the New Deal to boost them, but the Toy Town Tavern management is offering us the same rate that 1928 paid for the same facilities. We have not accepted their proposition yet, but it seems like the best possible bet and we'll probably sign with them.

We'll have a Worst Golfer Championship match with an "inundation" for the golf match losers. There'll be a ball game between the married men and the single men with more ducking for the losers and more beer for the winners. We'll have a variety of indoor sports as well. Let's go! Make our reunion one to be remembered. Remember the total cost per man for the week-end will be only $12.83.

Cub Clark, XV_2, appears in The Review for the first time with an interesting letter regarding himself and some of the boys around New York. It's a fine letter and I quote it in its entirety with the hope that it wil be an inspiration to some of the rest of you to write similarly. The letter follows: "Having just received my copy of The Technology Review and, as always, first looked for news of the Class of '29, I decided it was about time for me to sit down and make a contribution. It seemed good to read about some of the boys I had known. Perhaps the news I have will prove of interest.

"Art March, XV_2, is working for Carrier-Lyle and has been ever since he left school. He is located in Elizabeth, N. J., and is engaged (perhaps married). I haven't seen him for about three months now. — Al Eigenbrot is working in New York for M. W. Kellogg designing oil refinery equipment, having taken his master's degree in fuel and gas engineering. From latest reports, he is married.

"Now to yours truly. After graduating I worked for Sears, Roebuck about six months but couldn't see merchandising. So back to the Institute where I got a research assistant's job in fuel and gas engineering until September, 1930, when I started work on a master's degree, which was conferred in December, 1931.

"About two months later I went to work for the Consolidated Gas Company of New York as a test engineer. Although the remuneration wasn't great, the job was steady. At the present writing I am on a leave of absence and working for *Good Housekeeping* Institute, the engineering aspects of which may seem hazy to you but I can assure you they are concrete and manifold.

"My reaction to the time of a reunion is that 1935 would be better than this year. For at that time it would be possible to renew acquaintances with men of

1929 Continued

other classes as well as our own, an idea that should appeal to many of the boys. No doubt there would be adequate opportunity for our class to have its own get-together during the All-Tech Reunion. I shall be interested to learn of any developments. Hoping to see you at the reunion, and with personal regards to yourself and the rest of '29." Many thanks, Cub, come again!

Brig Allen writes that he saw Ted Ewald in New York late in February and that Ted had agreed to help with the organization of the '29 men around New York for the reunion.

By the time you read these notes you will probably have heard so much about the reunion that this will be stale information regarding it, but this will be a good reminder.

Gordon Williams, I, pops up in Washington with the U. S. Geological Survey and crashed through with some news about the gang in Course I. Judging from his notes, quite a number of the civil engineers are well on the way toward professorships. We'll be hearing more about them in the future. Our congratulations are in order also to the latest family men he records. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

COURSE I

Since the government has not as yet passed an act making class secretaries criminally responsible for inaccuracies in their notes, this Secretary ventures to submit the following items, most of which are mere hearsay.

Probably because of fear of the glaring publicity which these columns give, many of our classmates have failed to inform the Secretary of many important happenings in their lives. He has just learned that Jake Jacobs has been a deserter from the ranks of the bachelors for about three years and is besides the father of a baby girl. Jake is living in Billerica, Mass. — Bill Whiting and Miss Velma Everson were married a year ago last October. They now have a daughter, Cynthia, born last August. Bill is going strong in the insurance business and it is said that he doesn't know that there is any depression.

As announced in the March class notes, Ted Malmstrom is with the Bureau of Reclamation in Denver where he has joined Tony Perry and Hap Adkins. Which brings to mind the news that Hap was married last July to Miss Dorothea Cheney of Belmont, Mass. — Mr. and Mrs. Hunter Rouse have a son, Richard, born last August. Hunter is now an instructor at Columbia University. Also to be included among the potential professors are Link Reid at Columbia, Kittredge at Dartmouth, and DeFabritis at the Institute. The last mentioned achieves prominence by securing for himself a bride during his stay in Germany. He was married in Karlsruhr last June.

While on field work last July, the Secretary had the pleasure of meeting Dan O'Connell in Plymouth, N. H., where he was supervising the construction of a concrete highway. He is working with his father in the contracting business. On another occasion the Secretary met Ed Roche who is doing military duty with the CCC in Vermont. He is engineer in charge of the water supply for the camps in the Barre-Montpelier section where about four thousand men are working on flood control projects.

Bob Phillippe and Jack Hallahan are among the reëmployed. Bob is out in Ohio doing soil mechanics research for a government organization. Jack is working for his former employers, E. B. Badger and Sons Company. — Before these notes go to press the Secretary expects to be transferred to Washington, D. C., where he will be working on some special hydraulic studies which are being conducted by the Mississippi Valley Committee of the Public Works Administration in collaboration with the Geological Survey. — GORDON R. WILLIAMS, *Secretary*, U. S. Geological Survey, Washington, D. C.

1930

COURSE VI-A

These notes are going to be started off by a résumé of events, none of which had occurred at the time of this writing, but the first at least I am quite confident I shall see in reality: my marriage to Miss Hilda Blackmer of Melrose, Mass., on April 28. Consequently I leave bachelor quarters and take up residence at the address below.

Perhaps because misery likes company, I am making bold to prophesy the weddings of three other classmates in this year of 1934. In alphabetical order (and not the probable chronological order) I prophesy and suspect that Ray Bowley, William H. Wannamaker, and Bub Wilson will take steps to turn marital intentions into realities before we ring in another new year.

I visited Philadelphia not long ago, enjoying the hospitality of the Burleys. Frank is working in an enviable position with Philco, designing all the test equipment that Philco requires and doing a mighty fine job of it. I saw Ray Bowley while I was there. He, too, is working for Philco. I was also glad to see Wanny for the first time in a dog's age. Wanny is an oil engineer for Shell Oil now and is located in Chester, Pa., at present. — I saw Goodale at an I.R.E. meeting in New York. He is still developing excellent tubes for R.C.A. in Harrison, N. J.

An excellent class dinner was held by the Class of 1930 in the Technology Club of New York, March 13. The reasons I am reporting it are: First, Course VI-A had the largest representation, and second, I was the only course secretary present. Course I was represented by W. Howard Reed, Jr., and Joseph E. Rehler, who had to leave before the dinner to attend a night class. Course II had A. E. Husen to uphold it, Course IV-A, A. S. Uman, and Course VI, H. B. Shippen. Then came that wondrous array of Bill Spahr, the inevitable Steve Prendergast, and myself to stick up for VI-A. Lawrence Harris was there for Course VIII, B. DeLorenzi for Course X, and H. L. Beohner for Course XI. Jack Osborne and R. W. Tarr adequately upheld Course XV_2 while Courses XVI and XVII had good and great friends in L. S. Linderoth and D. Tullis Houston, respectively, although Tul was delayed in arriving so that we could have 13 at the dinner table. We had such an enjoyable evening that we unanimously voted to hold another on Wednesday, May 23, at 6:30 P.M. We shall try to get in touch with every '30 man in or near New York City, but we want them all, whether we know of your location or not. Come and congratulate me, at any rate. — EARL E. FERGUSON, *Secretary*, 321 Park Avenue, East Orange, N. J.

1932

Once more I am forced to remind the members of the Class of 1932 that the gathering of news for this column is a coöperative effort. The course secretaries are as busy as you are, but they will find time to pass on any information that you send to them. If you have lost touch with your course secretary, send any news you may have direct to me. In this issue there are some notes from Course IV-A which were contributed in such a manner. I was surprised to find that there was some hesitancy in doing so. An organization has been set up to facilitate the gathering of news of our friends, but it can only function with the help of everyone. If you enjoy looking to the back of The Review each month to see what your classmates have been doing, don't you suppose that others would be interested in what you are doing? — C. M. CHASE, *General Secretary*, Chase D 33, Soldiers Field, Boston, Mass.

COURSE IV-A

With the unanimous consent of Quig, Campello, Protze, Friedman, and myself, I am unofficial secretary of IV-A, '32. None of the letters I have received to date offered any encouragement in my new undertaking (I never tried writing for print before), but they all, as if by a board of directors' decision seemed to say, "We'll sit back and watch and read, and woe be unto you if you slip." Well, fellows, here it is and you can all — (I almost thought this was Rogers again).

Life and time wait for no man and in their going move very rapidly indeed. In the short span of almost two years, our class has been visited by both life and death. The unfortunate death of Jack Lynch (June 7, 1933) needs no recalling for those of us who know of it. Those to whom this is the first news of tragedy amongst us join with the remainder of the class in our futile expressions against a fate which so unmercifully snatches from our midst one so able and fitted as Jack. To his family we extend our tardy but none-the-less sincere sympathy. May their grief be lessened by a knowledge of the esteem which we who worked and played with Jack had for him.

Your scribe has presented the class with its first junior, a youngster born in late November, 1932, named Paul B. I should like to poll the class on whether to have him grow up to be an engineer.

1932 Continued

Now for some news of the successful men of the class: Quig is acting principal at the Iowa School for the Deaf at Council Bluffs. In June, 1933, he married Dorothy Hay of Washington, D. C. Congratulations and good luck to both of you! Here's hoping Dorothy can prevail upon Quig to give up blowing his piccolo, or was it a flute? Quig expects to be East this summer and I trust I shall run into him for more news. Joe Friedman has a cauliflower ear — no my good friends, he is not Benny Leonard in disguise — merely that the cold weather was too much for him and he couldn't take it. Regards to all you lucky engineers from Joe. Good old "For the Advancement of Science" Camp taught school for a while in Revere, but since I haven't heard from him for a while, there is no further news. Steve Faria is, as I understand, trying to connect with a teaching job. Good luck to you, Steve. About a year ago I met Berky still playing with Joe Rines at the Met and since then no news nor meeting. This might prompt him to do a little Winchelling. A long time ago I read of Pete Shelby leaving for Peru to hunt for fossils. Has anyone any news of the adventurer? Perhaps we'd better send Byrd after him. I am expecting a letter from Protze and I hope he will have some information of interest to the rest of you.

I seem to have touched only a few of the 15 plus members of IV-A, but the remainder have only themselves to blame for not being in this edition of The Review. Drop me a card with a little something about where and what you are or else write a novel and I promise publication, providing the editors agree. After all, my good friends, I do not own The Review. Those unaccounted for are Cooky, Slocky, Moreau, Malkasian, Amirian, and Corder. If I have neglected to mention anyone, just jot it down to a poor memory and I promise that if a letter or card brings news of anyone, it might be printed *en toto*, so take care of what you call me. — JULIUS GROZEN, *Acting Secretary*, 237 Grove Street, Fall River, Mass.

1933

The New York Course VI group had their third reunion the other night. They invited me over and a very enjoyable evening was had by all. About ten of the boys were present. We'll have to have more of these get-togethers.

It becomes the General Secretary's pleasant duty to divulge those things about the Course Secretaries which they are too modest, or something, to tell. This month we have Bob Swain pinch-hitting for Ed Goodridge in Course VI. Bob tells us everything about himself except that he plans to be married on Easter Sunday. Congratulations Bob and lots of luck.

Then I came across the following article in the New York *Times* recently, which will be of interest to you: "West Orange, N. J., March 9. — Hoping to follow in the footsteps of his benefactor, the late Thomas Alva Edison, Wilbur B. Huston, winner of the 1929 Edison Scholarship, awarded in a nation-wide contest, is endeavoring here to perfect a device that will change materially advertising methods in retail stores, it was learned today.

"Mr. Huston is working under the direction of Theodore Edison, the late scientist's son. The young inventor was retained by Mr. Edison as a member of his laboratory staff soon after Mr. Huston was graduated last June from the M.I.T. He entered the institution a few weeks after winning the contest, which was conducted in West Orange by the senior Mr. Edison two years before he died.

"Physically fitting the rôle of a scientist, the tall, spectacled young man, who is the son of a Seattle clergyman, is now devoting the greater part of his time to the perfection of the advertising device which is based on the principles of the phonograph, an Edison invention.

"The device is designed to make sales talks on retail-store counters and will replace placards now generally used. Theodore Edison conceived the idea and Mr. Huston is working on the details.

"Besides his working on the advertising device, Mr. Huston has spent part of his time constructing models of devices invented by other persons. Several of his models have been exhibited at the New York Museum of Science and Industry.

"Mr. Huston will return to college next Fall to take advanced courses in acoustics. He intends to specialize in the invention of devices that will eliminate industrial vibrations. He lives at 79 Washington Street, East Orange." — GEORGE HENNING, JR., *General Secretary*, 163 Barbey Street, Brooklyn, N. Y.

COURSE VI AND VI-C

Hello folks, this is station ESG again, broadcasting on a wavelength of 5,000 motorcycles with a few sidecars thrown in. Now don't get me wrong on the type of sidecar, especially you guys, Peters and Elias Thunderbolt McCormack. I am back on the air, this time with a whole new batch of fresh news from all the lads. It seems that a lot is happening to the various members of good old Course VI.

I have at hand here a letter from our old friend, Adrien Collin. He states that he is making his mark in the world up in the wilds of Canada by building a large power plant for his father. He talks glibly of such things as automatic voltage regulators, individual motor drives, and other sundries so that it would give one the impression that he must have studied his 8.01, a most remarkable case indeed. Adrien also volunteers the information that he is making some young lady supremely happy next June by making the noblest of all masculine sacrifices, that is, giving up his freedom for the rest of his eternal life. Good luck, Adrien.

I see that our fellow chiseler (namely, Mr. Charles E. Quick, Esq.) is doing his daily dozen for the Detroit Edison Company. He informs me that young engineers are in demand out in the Middle West. Come on fellows, make it look like the Gold Rush of '49.

John Clark, the greatest chiseler of them all, showed his true worth by chiseling off two fingers for the Habirshaw Cable and Wire Corporation in Yonkers. I tell you fellows, that is the spirit I like to see exhibited by the Class of 1933. John bravely stepped up to the machine, I am told, thrust his fingers into the works and turned to the President of the Corporation, who was standing nearby in overalls, and calmly said, "You see, I give my right hand for your company." All joking aside, John had a very narrow escape and was lucky to lose only two fingers. We are mighty sorry to hear that it happened and hope he will be treated right in the matter.

Jim Merrill is my next victim. I see that he is practically, not quite, but practically President of the New York Edison Company. Oh, no, pardon me fellows, I read his letter wrong; instead of being president, he only keeps the door to the President's office shut. Only a slight error. It seems as though Jim were really on the road to success. He is working along the lines of his chosen career at any rate, and for a big company to boot. Lots of luck, Jim, you deserve it.

Al Payne is down at Westerly, R. I., working as a draughtsman in a printing establishment. He has invited all the Course VI men down to Westerly to have a chicken dinner on him sometime soon. (I hope he doesn't read this because he doesn't know that he has invited us yet, but surprises are always pleasant, sometimes.)

Next we come to a man well known by all, a man who never smokes — (his own cigarettes). Ah, a great light breaks over your face; I can see that you know to whom I refer. You are right, the inestimable and "unkeepdownable" one and only Bob Baker. How the H—— are you, Bob? Remember "Tooky-tookit?" (Pardon me, that last was a remembrance dear to the author, Bob, and Johnny Clark.) I understand that Bob is hopping around from one job to another, going all the way from the New England Box Company to the Pennsylvania Railroad by way of the Geodetic Survey. I also hear that he is soon to jump off the deep end with his beautiful Thelma. Good luck, Bob, you're going to need it.

From Asbury Park comes a long drawn-out wail from one John Logan, inventor and gentleman of fortune. Whether he is a gentleman of good fortune or bad fortune, I have no way of telling, probably bad. I have heard through devious channels that he went over to the enemy's camp and became a teacher for a week in December. If they let Johnny teach, I know now why I never learned anything in high school. From all reports, though, I guess Mr. Logan did an excellent job pinch-hitting as an algebra, arithmetic, ancient history, and European history teacher. No mention of his famous invention is made in the last communication received from the erstwhile gentleman. We sincerely hope that he hasn't given up the idea of washing cars. Maybe he thought the idea was all wet. Get it, boys? John hopes to land a job in a Holly-

1933 Continued

wood or Long Island picture studio. He doesn't say whether he will take active part in pictures, such as being an ash tray, bridge lamp holder, or some other ornament, or whether he will be the engineer behind the works. We hope the latter. Good luck, Johnny.

Bruce Ennis (the fellow with the 'lil' cute Ford, remember?) well, it seems that he is trying to commit suicide by driving "airyplanes." I guess maybe he is despondent on account of the job situation or perhaps he is just a plain d—— fool. Anyhow, I, for one, envy him. Ha, another d—— fool, you say; well, perhaps you are right. Bruce hopes to help open up the big wide western spaces by being a civil engineer on a job in the Ozarks, building a farm and lots of log cabins, for a charitable institution out near where he lives. No doubt all the graduates of Course VI that are not working, upon reading this, will leave immediately for this mecca, nothing to do but work for one's own room and board, so Ennis tells me. What kind of flowers do you prefer if your gasoline supply runs short, Ennis?

Who is that knocking at my door? 'Tis none other than Edward S. Goodridge. Ever hear of him? He is that terrible slacker who does nothing but waste his time earning money. From where I sit I can hear a large cry go up, "Who is doing the writing? I thought Ed was." All in due time shall you find out the author of this manuscript. At any rate, Ed is doing fine with his business in New York City and at the present moment is hot on the trail of another million dollar business involving silk mills. More about the silk mills will be written at a later date if anything comes of it. Ed has held down no less than four jobs since his graduation which goes to show his extreme versatility. He left each job to take a better one and then decided to show all business houses how it should be done by going into business for himself. He bids fare to control New York City in his particular line of work within a very short time. If anyone has a hallway lamp they want to flash, just drop a line to Ed, known to his business associates as Goodridge & Company, Sign Flashing — Signal Engineers, 489 Fifth Avenue, New York City. If any of youse guys happen to be around here, he would be very glad to have you drop in at the above address.

And now to divulge the great secret, who is the author? 'Tis none other than Bob Swain, at the present time in the employ of Goodridge and Company. Ed asked me to write for this issue as he is pretty busy now, which I gladly consented to do. I could have written this as though it were Ed's work but that would be tantamount to murder as I expect to be shot any minute for some of the above writing. Up to the time I started working for Ed, I was employed by the United Cigar Stores Delaware Corporation but as selling cigars was not an electrical job, I left at the earliest possible moment.

Some of the boys are having a reunion Friday, March 23, at the Tech Club. Several of these get-togethers have already been held with great success.

A certain round-robin letter started by one Jim Merrill seems to have been either lost, strayed, or stolen. I am taking this opportunity to try and hasten it on it's way if by any chance some reader of The Technology Review knows where it is.

I think, gentlemen, if you may be called such, that I have covered all the salient points that need to be mentioned, and therefore it is with regret that station E S G once again signs off until the next time. — EDWARD S. GOODRIDGE, *Secretary*, 10 East 16th Street, New York, N. Y.

COURSE VI-A

A few more of the bunch have left the Institute more or less permanently, and soon should be sending in some interesting items of news. Most of them seem to have jobs, and those who don't have at least sound optimistic.

Dick Zimpel writes that he will still be teaching at the Van Hornesville, N. Y., High School. He also says: "I got my degree by mail, after passing off a condition in hydraulics by mail. That puts M.I.T. in the same class as I.C.S."

I received a postcard from Harris Thompson, who is still at the Institute. He says that he is busy with Tech Show rehearsals. I imagine, however, that he keeps his car well oiled, and ready for more educational pursuits. He says that Warren Webster is now with the General Radio Company, and that N. F. Smith is in the Television Laboratory of Philco, in Philadelphia.

About a week ago, I spent a couple of days in Philadelphia, and saw Eugene McBride, VI-A '32, who is assistant research engineer for the Wirt Manufacturing Company. He is the co-author of an article on a new type of audio oscillator. This article will appear shortly in the *Journal* of the Institute of Radio Engineers, and in *Electronics*. He tells me that Jack Osterman, who is now working with the Commercial Department of the New York Telephone Company, is again living in his old haunts, Greenwich Village.

Max Millard told me yesterday, when I drove over to see him, that he had been working hard on his thesis, but had found time to take some exercise, skiing, and to chop down trees. He told me that Miles Van Valzah Hayes, who was originally classified as VI-A '34, decided to be satisfied with an S.B. degree last January, and now has a job with a lumber company in Seattle.

Before I make up the next batch of news in early September, I expect that most of our select (!) group will have jobs, and lots of things to talk about. Good luck, and don't forget to let the rest of us hear what you are doing. — JOHN F. LONGLEY, *Secretary*, 11 Courter Avenue, Maplewood, N. J.

COURSE VIII

I write this month of the boys in Boston, they who are studying at the Institute, or are around for other reasons. Next month I hope to report on all those who are not around Boston. Dayt Clewell is the source for most of this information, so you can blame him for any mistakes I make.

Johnny Sterner is one of those fortunate people who move in the, I gather, idyllic surroundings of the graduate house. John is taking advantage of the tutoring plan and if there is anything the freshmen don't understand in lectures, well John is right there with all the answers.

For his master's thesis, Raymond is working hard in the spectroscopy lab under the direction of Professor Harrison, while Lawrence Parsegian is working hard on the problem of getting discharged from the great army. If more recent developments change that picture, Lawrence, I'll be glad to be called to task for it.

Dayt Clewell and I were the sole representatives of Course VIII at the big alumni banquet in February. Dayt was a backslider, however, and sat downstairs with the other gentlemen of the press, while I sat upstairs on the balcony with about 30 boisterous members of the class. A grand time was had by all. Valentine, almost an VIII man, was one of the fortunates present. To finish off these notes and Clewell at the same time, Dayt tells me that he is well along toward the elusive Ph.D. Good going, Dayt. — WILBER B. HUSTON, *Secretary*, 79 Washington Street, E. Orange, N. J.

COURSE IX

Course IX seems to be going along in its own individual way. We hear that Dodson is pouring concrete in Lincoln, Neb., you know. Bob Ripin claims to be an inventor, and to get paid for it. He discovers new mechanical toys and when he gets through playing with them, he sells the ideas to toy factories. Some of the boys are doing graduate work at the Institute, including Valentine, Hentschel, Harper, and Rose. Bob Holt and "Van" Van de Water have separated to their respective home towns; Bob having been acquired by the National Life Insurance Company of Montpelier, Vt. and Van having decided to aid the Metropolitan Water District of Long Beach, Calif.

So far we've only heard of one engagement in the Course, but that sort of broke up before we heard about it. We're still waiting to hear about another one, and will let you know when the news breaks. — MALVIN J. MAYER, *Secretary*, 64 Nonantum Street, Newton, Mass.

COURSE XV

Are all your insurance policies paid up to date? Then it is time to get another one and we have lots of fellows ready and eager to sell it to us. Dick Hodgdon is with A. H. Curtis Company, agents for the New England Mutual Life Insurance Company. Dave Nason is an associated member of the company and I hear that he has already sold Dot Bond. Keep it up, Dave. Nat Goodman is with the Sanborn Agency of the Connecticut Mutual Life and Norm Harris is in Worcester with the Liberty Mutual Automobile Insurance Company. Take your choice; what kind will it be?

1933 Continued

Jim Turner is with a mill supply company and apparently doing quite well. Bob Forbes is with the CWA on a Coast and Geodetic Survey project which ought to last longer than some of the others. Harry Summer is on the list of Boston Interviewers for Percival White, Inc., of New York, market research. Tom Hayden is just finishing up his thesis and is planning on that special term at the Harvard Business School. Lance Bowen is with the National Association of Wool Manufacturers.

There has been some comment on having a Course XV write-up if enough of you are interested. Send along some news and we will try it. Every little bit counts. So Long. — FRANK J. LOPKER, *Secretary*, 611 Madison Avenue, S. E., Grand Rapids, Mich.

COURSE XVII

This month we have word from Coop. The dear boy's been in hiding for so long its a positive joy to be able to report on his activities. Just like "Little Benny," he's been chasing about here and there looking. But Coop has a home and he's only searching for a job. By now he may be one of the young engineers on the five-million-dollar municipal auditorium at Kansas City, but we make no promises.

It seems that our Missouri lad had been round and about over that state and those nearby but no one wanted a real sure-nuff world beater. Here's hoping he got the job he had his eyes on. During part of January and February, Coop was running a level for the U. S. C. and G. Survey, readings being made to the closest thousandth of a foot. He reports that he's getting good at it, checking the required $0.05\sqrt{\ }$ of the length of line in a mile. Then, too, he wonders why he hasn't heard from anyone — a guy like that who doesn't answer his mail.

Now a word from Tom Galvin: He was going to give Sully some hell about not writing, but I'll bet it slipped his mind, for I'm waiting still. Tom has gone and pulled a fast one on us. He was out in that deep New England snow doing survey work on snowshoes — as if anyone wants to work with ten feet drifts. He's working for the Engineering Department of the City of Haverhill. One of his duties is making weather records, so he delights us with statistics and reports the weather fickle but interesting. Variety always makes for interest.

Tom and Bob Crane got to the Alumni Home-coming Dinner in February and we were right well represented, too, for Tom reports about 25 Class of '33 men there. A couple more Course XVII'ers were there from the Class of '32. (Note for Tom: No, I'm not spending too much time near New York — never fear.)

Then a letter from Ed Rowell reporting himself as the second XVII man to get into finances for himself. He's doing repair and alterations on a commission basis. Through a connection with a carpenter and millwork organization, he figures work, submits bids, and if he's low, supervises the work. The firm finances the operation and supplies the material in its line. He is encouraged over prospects and with the ever-present possibility of government loans to home-owners, the field may open up.

Neil and I got together in New York for a brief lunch on St. Patrick's Day. He seemed in the best of health, said he has been quite busy with his work, had been an interested party in five "kick-back" cases in which employers were getting workmen to come across with a "donation" each pay day. Its all in the day's work, though, and Don is coming right along. The blonde with him for lunch was quite all right, too — maybe we'll have to have lunch together again and not rush away so soon. He's teaching her descriptive geometry in his spare hours. We never thought it, Don.

Next month we're going to have a guest editor. Don accepted the position, so do right by him now. How about some news from Sully, Jim, and the Colonel next month? — BEAUMERT WHITTON, *Secretary*, Box 173, Hampton, Va.

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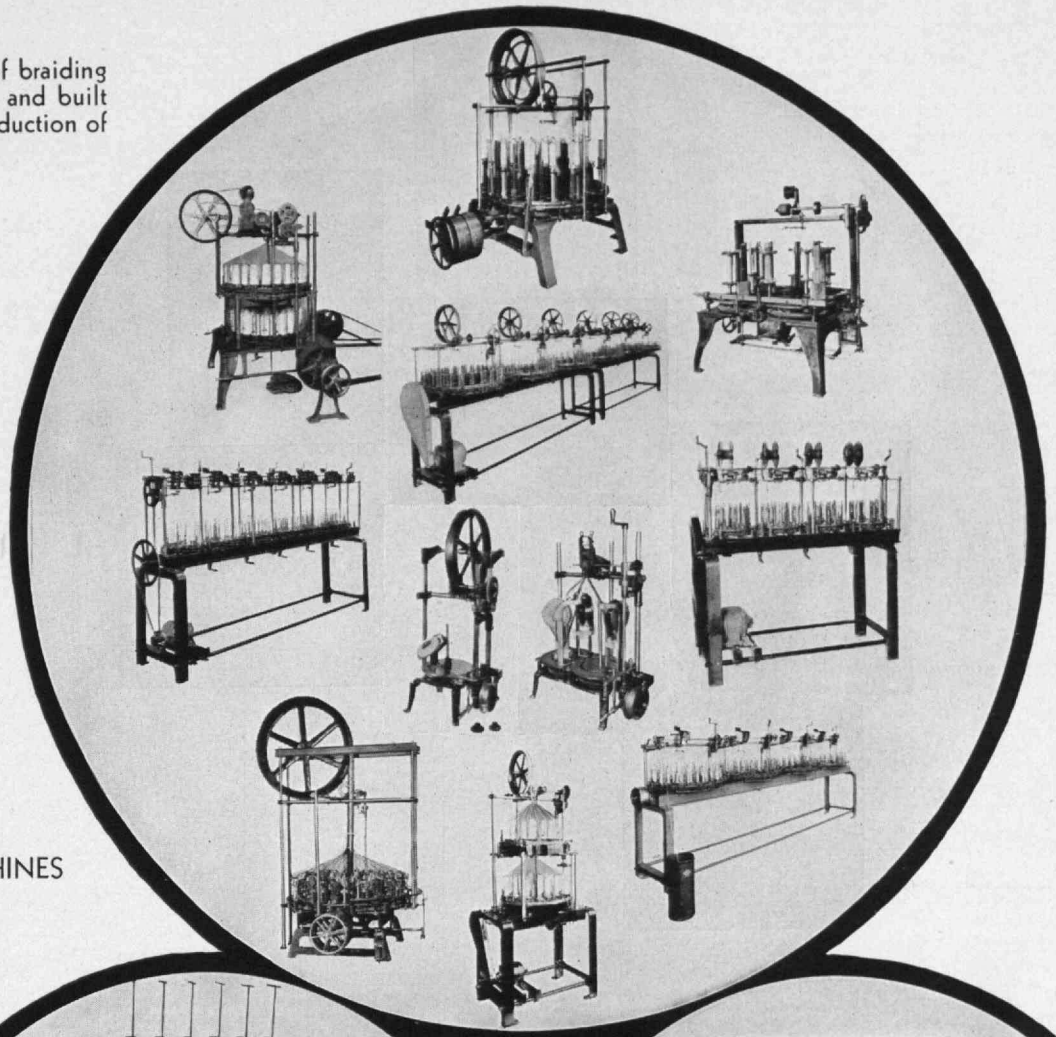

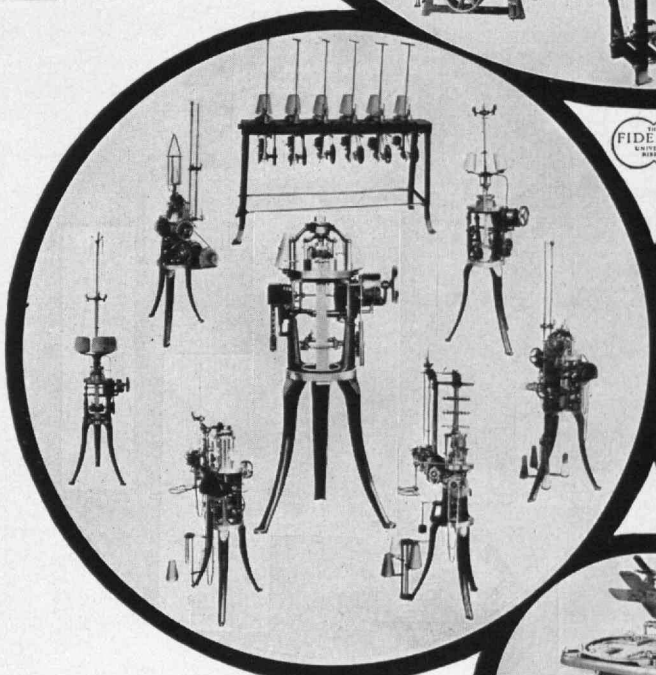

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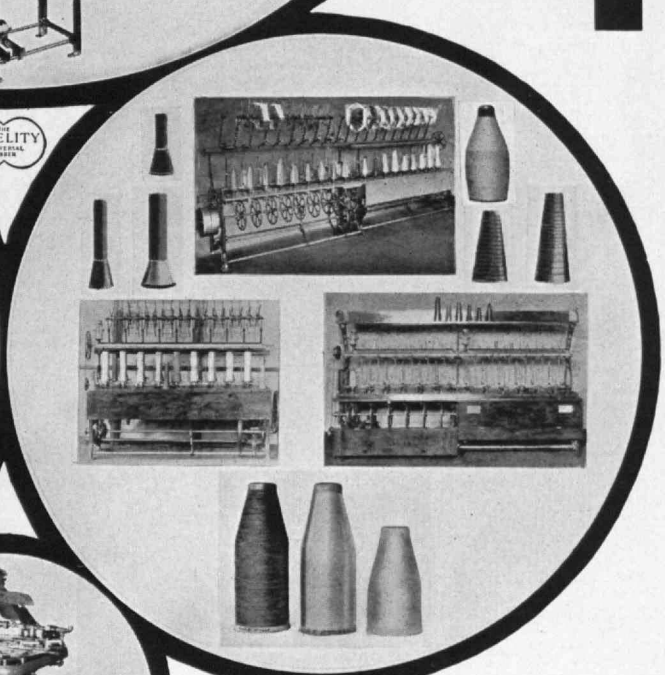

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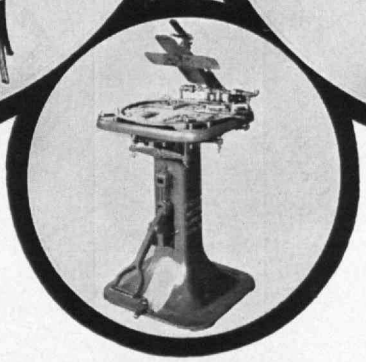

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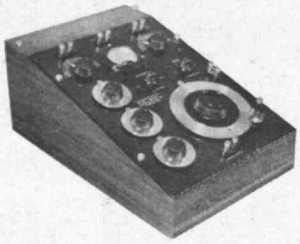

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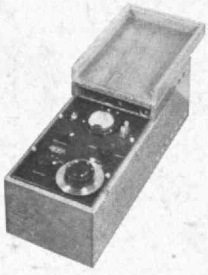

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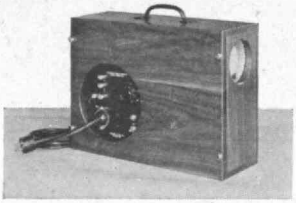

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